Access DB# 76063

SEARCH REQUEST FORM

Scientific and Technical Information Center

Requester's Full Name: Susy Tsang-Foster Examiner #: 76063 Date: 10/23/02
Art Unit: 1745 Phone Number 30 5-0588 Serial Number: 09/689,817
Mail Box and Bldg/Room Location: CP3 8A09 Results Format Preferred (circle): PAPER DISK E-MAIL

If more than one search is submitted, please prioritize searches in order of need.

****

Please provide a detailed statement of the search topic, and describe as specifically as possible the subject matter to be searched. Include the elected species or structures, keywords, synonyms, acronyms, and registry numbers, and combine with the concept or utility of the invention. Define any terms that may have a special meaning. Give examples or relevant citations, authors, etc, if known. Please attach a copy of the cover sheet, pertinent claims, and abstract.

Title of Invention: Molded Electrode, Method for production thereof and Secondary battery using thereof

Inventors (please provide full names): Please see attached list

Earliest Priority Filing Date: 10/14/1999

**For Sequence Searches Only* Please include all pertinent information (parent, child, divisional, or issued patent numbers) along with the appropriate serial number.*

Please search for an electrode comprising:
(a) an electrode material comprising a polymer active material, a conductivity-enhancing agent and a plasticizer and
(b) a plurality of current collector sheets; the electrode material and the current collector sheets are formed into one piece, and the current collector sheets are spaced from each other in the thickness direction of the electrode.

See attached claim 2. The Examiner is not giving weight to the term ~~mo~~ molded in the preamble.

****

STAFF USE ONLY	Type of Search		Vendors and cost where applicable	
Searcher: Carl Wong	NA Sequence (#)		STN	/ 67.20
Searcher Phone #: 305-9729	AA Sequence (#)		Dialog	/
Searcher Location: PK2 4B33	Structure (#)		Questel/Orbit	
Date Searcher Picked Up: 10-30	Bibliographic	/	Dr.Link	
Date Completed: 10-30-02	Litigation		Lexis/Nexis	
Searcher Prep & Review Time: 155	Fulltext		Sequence Systems	
Clerical Prep Time:	Patent Family		WWW/Internet	
Online Time: 96	Other		Other (specify)	

PTO-1590 (8-01)

Application case serial number 09/689817

Attached are the search results (from commercial databases) for your case.

Color tags mark patents/articles which appear to be most relevant to the case.

[redacted]

Pls call if you have any ?s or suggestions for additional terminology,
or a different approach to searching the case.

Prepared for: Examiner Sung Tsang Foster CP3 8A09

By : Carol Wong, EIC2100, 305-9729

Date : 10-30-02

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File 344:Chinese Patents Abs Aug 1985-2002/Oct
         (c) 2002 European Patent Office
File 347:JAPIO Oct 1976-2002/Jun(Updated 021004)
         (c) 2002 JPO & JAPIO
File 350:Derwent WPIX 1963-2002/UD,UM &UP=200268
         (c) 2002  Thomson Derwent
File 371:French Patents 1961-2002/BOPI 200209
         (c) 2002 INPI.  All rts. reserv.

Set     Items   Description
S1     226876   ELECTRODE# OR MICROELECTRODE# OR ELECTROLYTE# OR ANOD?? ? -
             OR CATHOD?? ? OR KATHOD?? ? OR POSODE?? ? OR KATOD?? ? OR NEG-
             OD?? ?
S2      20284   CURRENT(2N)COLLECT???? ?
S3        369   (PLURALITY OR MANY OR MULTI OR SEVERAL OR TWO OR NUMBER OR
             NUMEROUS OR MULTIPLE OR MULTITUD? OR PLURIF? OR SECOND OR MOR-
             E)(1W)S2
S4          1   MULTILAYER?(1W)S2
S5        540   S2(3N)(SPACE? ? OR SPACING? OR INTERSPAC???? ? OR INTERSTI-
             C? OR SEPARAT???? ? OR SEP? ? OR CLEARANCE? OR INTERVAL? ?)
S6        637   S2(3N)(LAYER? ? OR STRATA? ? OR STRATUM? ? OR INTERLAY? OR
             INTERLAID?)
S7       1330   S2(3N)(INSERT? OR INTERPOS? OR INSINUAT? OR BETWEEN OR SAN-
             DWICH? OR EMBED? OR BETWIXT OR INTRODUC? OR INTERVEN? OR INTE-
             RLARD? OR INTERJECT?)
S8     892642   ELECTRODE? ? OR MICROELECTRODE? ? OR ELECTROLYTE? ?
S9        168   S3:S4(S)S5:S8
S10       137   S9(S)(S1 OR S8)
S11   1411386   POLYMER? ? OR HOMOPOLYMER? ? OR COPOLYMER? ? OR TERPOLYMER?
             ?
S12     73046   S11(6N)(HEAT? OR HOT? ? OR MELT??? ? OR WARM?? ? OR WARMING
              OR CALEFACT? OR TORREFACT? OR PYROL? OR PYROG? OR SINTER? OR
             THERMOL? OR THERMAL?)
S13      2789   S11(6N)(TEPEFACT? OR PREHEAT? OR FUSE? ? OR FUSING OR FUSI-
             ON)
S14      9370   S11(6N)(HIGH OR HIGHER OR RAIS? OR HEIGHTEN)(2N)(TEMP? ? OR
              TEMPERATURE? OR THERMAL?)
S15        81   S3:S4 AND S5:S7
S16        48   S15 AND (S1 OR S8)
S17         0   S16 AND S12:S14
S18        14   S16 AND S11
S19         0   S15 AND S12:S14
S20        16   S15 AND S11
S21     63115   IC='H01M-004'
S22     19228   IC='H01M-006'
S23     31560   IC='H01M-008'
S24     62522   IC='H01M-010'
S25       236   IC='H01M-011'
S26      3869   MC='A12-E06A'
S27      9897   MC='L03-E01B'
S28     17946   MC='A09-A03'
S29      8267   MC='A08-M09A'
S30        27   S15 AND S21-S27
S31        10   S30 AND (S11 OR S28:S29)
S32        16   S18 OR S20 OR S31
?t32/9/all

 32/9/1     (Item 1 from file: 347)
DIALOG(R)File 347:JAPIO
(c) 2002 JPO & JAPIO. All rts. reserv.

06767637    **Image available**
POSITIVE   ELECTRODE   MATERIAL FOR  POLYMER  LITHIUM SECONDARY BATTERY AND
NEGATIVE  ELECTRODE  MATERIAL FOR  POLYMER  LITHIUM SECONDARY BATTERY

PUB. NO.:     2000-353510  [JP 2000353510  A]
PUBLISHED:    December 19, 2000 (20001219)
INVENTOR(s):  SHIMAZU KENJI
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YAMAMOTO FUMIMASA
APPLICANT(s): TOSHIBA BATTERY CO LTD
APPL. NO.: 11-163818 [JP 99163818]
FILED: June 10, 1999 (19990610)
INTL CLASS: **H01M-004/02 ; H01M-010/40**

ABSTRACT

PROBLEM TO BE SOLVED: To provide a positive **electrode** material for a **polymer** lithium secondary battery which can improve a service life of a charge/discharge cycle of the **polymer** lithium secondary battery.

SOLUTION: In a positive **electrode** material for a **polymer** lithium secondary battery which has a such structure that a positive **electrode** layer 1 of an anti- impregnated nonaqueous **electrolyte** including a **polymer** having a holding mechanism of an active material that stores/discharge a lithium ion and a nonaqueous **electrolyte** is supported to a positive **electrode** current collector 2, a rupture strength of a positive **electrode** layer 1 situated **between** two positive **electrode** **current** **collectors** 2 is not less than 0.190 kgf/cm when the **two** positive **current** **collector** 2 are pulled to peel off from the positive **electrode** layer 1 disposed **between** the positive **electrode** **current** **collector** 2 in an inspection laminating material 3 which is laminated in order such that the positive **electrode** layer 1/the positive **electrode** current collector 2/the positive **electrode** layer 1/the positive **electrode** current collector 2/the positive **electrode** layer 1.

32/9/2 (Item 2 from file: 347)
DIALOG(R)File 347:JAPIO

05651271 **Image available**
EL LAMP

PUB. NO.: 09-266071 [JP 9266071 A]
PUBLISHED: October 07, 1997 (19971007)
INVENTOR(s): TANABE KOJI
CHIKAHISA YOSUKE
IKOMA HEIJI
NAMITO MINORU
APPLICANT(s): MATSUSHITA ELECTRIC IND CO LTD [000582] (A Japanese Company or Corporation), JP (Japan)
APPL. NO.: 08-072703 [JP 9672703]
FILED: March 27, 1996 (19960327)
INTL CLASS: [6] H05B-033/26
JAPIO CLASS: 43.4 (ELECTRIC POWER -- Applications); 14.2 (ORGANIC CHEMISTRY -- High **Polymer** Molecular Compounds); 42.5 (ELECTRONICS -- Equipment); 44.2 (COMMUNICATION -- Transmission Systems); 44.6 (COMMUNICATION -- Television
JAPIO KEYWORD:R011 (LIQUID CRYSTALS)

ABSTRACT

PROBLEM TO BE SOLVED: To provide a thin and highly flexible EL lamp in which a design pattern can be seen at lighting or non-lighting by successively forming a transparent **electrode** layer, the design pattern, a light emitting body layer, a dielectric layer, a back plate layer, and an insulating coat layer on an insulating transparent film by printing.

SOLUTION: A transparent **electrode** layer 2 is formed on an insulating transparent film 1, a design pattern 3 is formed by printing on the transparent **electrode** layer 2, a light emitting body layer 4 using a phosphor powder subjected to moisture preventing treatment is formed by printing on the transparent **electrode** layer 2 and the design pattern 3. A dielectric layer 5 and a back plate layer 6 are successively formed by printing on the light emitting body **layer** 4. A first **current** **collecting** **electrode** 6A having one end connected to the back plate

layer 6 and the other end constituting an external connecting part and a **second current collecting electrode** 2A having one end connected to the transparent **electrode** layer 2 and the other end forming an external connecting part are formed thereon by printing. An insulating coat layer 7 is formed by printing on the whole upper surface except the tip of the external connecting parts so as to cover them.

32/9/3 (Item 3 from file: 347)
DIALOG(R)File 347:JAPIO

05539462 **Image available**
GENERATOR

PUB. NO.: 09-154262 [JP 9154262 A]
PUBLISHED: June 10, 1997 (19970610)
INVENTOR(s): MUKAI TAKUZO
MITANI KENZOU
APPLICANT(s): DENSO CORP [000426] (A Japanese Company or Corporation), JP (Japan)
APPL. NO.: 08-236397 [JP 96236397]
FILED: September 06, 1996 (19960906)
INTL CLASS: [6] H02K-013/00; H01R-039/00; H02K-005/10; H02K-009/06; H02K-019/22; H02K-019/36
JAPIO CLASS: 43.1 (ELECTRIC POWER -- Generation); 14.2 (ORGANIC CHEMISTRY -- High **Polymer** Molecular Compounds); 26.2 (TRANSPORTATION -- Motor Vehicles); 42.9 (ELECTRONICS -- Other
JAPIO KEYWORD: R124 (CHEMISTRY -- Epoxy Resins)

ABSTRACT

PROBLEM TO BE SOLVED: To achieve a compact configuration of an AC generator for a vehicle by shortening the dimension in the axial direction of the generator having a blower at the edge of a pole core.

SOLUTION: **Two current collector** rings 41 and two brushes 51 are arranged inside the ring-shaped blade line of a blower 7 in the radial direction, and the axial length of an AC generator 1 for a vehicle is shortened. Furthermore, a current collector ring cover 61 forming a housing chamber 48 housing **two current collector** rings 41 and two brushes 51 is made to be a very simple cylindrical wall member. Thus, a sucking space for uniformly sucking air is formed toward the entire surface of the ring-shaped blade line of the blower 7. The surrounding parts of **two current collector** rings 41 are surrounded with a brush holder 59 and the current collector ring cover 61, which are fixed to a rear housing 12. A minute gap 47, which enhances the tightly closing property in the housing chamber 48, is provided **between** the **current collector** ring cover 61 and a supporting plate part 44 of the blower 7, which is attached to the edge of a pole core 33.

32/9/4 (Item 4 from file: 347)
DIALOG(R)File 347:JAPIO

02253250 **Image available**
ELECTRODE FOR PLASTIC BATTERY

PUB. NO.: 62-170150 [JP 62170150 A]
PUBLISHED: July 27, 1987 (19870727)
INVENTOR(s): YOKOISHI SHOJI
NONOBE YASUHIRO
ONISHI TORU
APPLICANT(s): TOYOTA MOTOR CORP [000320] (A Japanese Company or Corporation), JP (Japan)
APPL. NO.: 61-010808 [JP 8610808]
FILED: January 21, 1986 (19860121)
INTL CLASS: [4] H01M-002/26; H01M-002/22; **H01M-010/40**

JAPIO CLASS: 42.9 (ELECTRONICS -- Other); 14.2 (ORGANIC CHEMISTRY -- High **Polymer** Molecular Compounds); 26.2 (TRANSPORTATION -- Motor Vehicles
JAPIO KEYWORD: R052 (FIBERS -- Carbon Fibers)
JOURNAL: Section: E, Section No. 572, Vol. 12, No. 9, Pg. 113, January 12, 1988 (19880112)

ABSTRACT

PURPOSE: To increase the mechanical strength of an **electrode** by forming a projection in each of the first sheet-like current collector made of carbon fibers and the second sheet-like current collector made of aluminum, and alternately stacking them, then arranging a conductive resin between the same projections.

CONSTITUTION: The first current collector 10a is formed by braiding carbon fibers in a 0.4mm thick sheet, and a projection 2a is formed at its upper end. A polypyrrole thin film 3 is formed by electrolytic polymerization on the surface of the current collector 10a except for its projection 2a. The **second current collector** 10b is formed with a 0.4mm thick aluminum sheet, and a projection 2b is formed at its upper end. A lithium thin film is formed by electrolysis on the surface of the current collector 10b except for its projection 2b. Spaces between stacked projections of the first **current collectors** 10a and those **between** stacked projections of the **second current collectors** 10b are bonded with a conductive resin 5, and a space 4 is formed **between** the first **current collector** 10a and the **second current collector** 10b. Thereby, a lead wire mounting job is made easy and the possibility of short circuit can be eliminated.

32/9/5 (Item 1 from file: 350)
DIALOG(R)File 350:Derwent WPIX

014806687 **Image available**
WPI Acc No: 2002-627393/200267
XRAM Acc No: C02-176965
XRPX Acc No: N02-496125

Oxide ion conductive ceramic membrane, used in electrochemical cells for separating oxygen from air or a mixture of gases, has layer of solid electrolyte **, bonding** layer **, porous electrodes,** current collectors **and coating**

Patent Assignee: AIR LIQUIDE SA (AIRL)
Inventor: BACH G; CHAPUT C; DEL GALLO P; GOURIOU G; TERRACOL T
Number of Countries: 100 Number of Patents: 002
Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week	
WO 200258829	A1	20020801	WO 2001FR4035	A	20011218	200267	B
FR 2820054	A1	20020802	FR 20011085	A	20010126	200267	

Priority Applications (No Type Date): FR 20011085 A 20010126
Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
WO 200258829	A1	F	49	B01D-071/02	

Designated States (National): AE AG AL AM AT AU AZ BA BB BG BR BY BZ CA CH CN CO CR CU CZ DE DK DM DZ EC EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MA MD MG MK MN MW MX MZ NO NZ OM PH PL PT RO RU SD SE SG SI SK SL TJ TM TN TR TT TZ UA UG US UZ VN YU ZA ZM ZW
Designated States (Regional): AT BE CH CY DE DK EA ES FI FR GB GH GM GR IE IT KE LS LU MC MW MZ NL OA PT SD SE SL SZ TR TZ UG ZM ZW

FR 2820054	A1			B01D-069/12	

Abstract (Basic): WO 200258829 A1

NOVELTY - Oxide ion conductive ceramic membrane, having a finite volume and given thickness, comprises:

(1) a dense layer (CD) of a solid **electrolyte** ;
(2) a bonding layer (CA);
(3) two porous **electrodes** of the same or different chemical

compositions;

(4) **two** porous **current collectors** applied to the **electrodes** ; and

(5) at least one porous coating layer

DETAILED DESCRIPTION - Oxide ion conductive ceramic membrane, having a finite volume and given thickness, comprises:

(1) a dense layer (CD) of a solid **electrolyte** having an oxide ion conductive crystalline structure at electrolysis temperature;

(2) a bonding layer (CA) with an oxide ion conductive crystalline structure, a mixed crystalline structure, or a mixture of the two;

(3) two porous **electrodes** of the same or different chemical compositions, applied to the surfaces of the solid **electrolyte** and bonding layers;

(4) **two** porous **current collectors** applied to the **electrodes** ; and

(5) at least one porous coating layer.

The coating layer is made from a material or mixture of materials that is chemically compatible with the materials used for the **electrodes** , current collectors and **electrolyte** and having a fritting temperature close to that of such materials.

The solid **electrolyte** is a ceramic oxide or a mixture of ceramic oxides selected from ZrO2, CeO2, HfO2, ThO2, Ga2O3 or Bi2O3, doped with one or more oxides selected from MgO, CaO, BaO, SrO, Gd2O3, Sc2O3, Yb2O3, Er2O3, Y2O3, Sm2O3, In2O3, Nb2O3 and La2O3.

USE - For electrochemical cell used for separating oxygen from air or a mixture of gases.

ADVANTAGE - Improved performance, with reduced risk of degradation.

DESCRIPTION OF DRAWING(S) - The drawing shows a cross-section of an electrochemical cell. (Drawing contains non-English language text).

pp; 49 DwgNo 1A/4

Technology Focus:

TECHNOLOGY FOCUS - **POLYMERS** - Preferred Component: The current collectors can be made with the aid of porogenous substances, e.g. polypropylene waxes such as PropylTex (RTM), polyamides, PTFE or polystyrene spheres

Title Terms: OXIDE; ION; CONDUCTING; CERAMIC; MEMBRANE; ELECTROCHEMICAL; CELL; SEPARATE; OXYGEN; AIR; MIXTURE; GAS; LAYER; SOLID; ELECTROLYTIC; BOND; LAYER; POROUS; **ELECTRODE** ; CURRENT; COLLECT; COATING

Derwent Class: A85; E36; J01; J03; X25

International Patent Class (Main): B01D-069/12; B01D-071/02

International Patent Class (Additional): B01D-053/22; B01D-053/32; B01D-171-20; C01B-013/02; G01N-027/41; **H01M-008/06** ; **H01M-008/10**

File Segment: CPI; EPI

Manual Codes (CPI/A-N): A12-E09; E11-Q01; E31-D01; E34; E35-F; E35-L; E35-M ; E35-N; J01-E03E; J03-A

Manual Codes (EPI/S-X): X25-R01A

Chemical Fragment Codes (M3):

01 C108 C550 C810 M411 M720 M904 M905 M910 N161 Q431 R01779-K R01779-P

02 A428 A657 A940 A980 C108 C550 C730 C801 C802 C803 C804 C805 C807 M411 M781 M904 M905 N161 Q130 Q431 R038 R043 RA83G7-K RA83G7-U

03 A212 A220 A238 A256 A421 A422 A423 A424 A425 A426 A427 A428 A429 A430 A539 A657 A758 A759 A760 A761 A762 A763 A764 A765 A766 A767 A768 A769 A770 A771 A940 A980 C108 C550 C730 C801 C802 C803 C804 C805 C807 M411 M781 M904 M905 N161 Q130 Q431 R038 R043 0072-78104-K 0072-78104-U

04 A212 A220 A238 A256 A421 A422 A423 A424 A425 A426 A427 A428 A429 A430 A539 A657 A758 A759 A760 A761 A762 A763 A764 A765 A766 A767 A768 A769 A770 A771 A940 A980 C108 C550 C730 C801 C802 C803 C804 C805 C807 M411 M781 M904 M905 N161 Q130 Q431 R038 R043 0072-78103-K 0072-78103-U

05 A212 A220 A238 A256 A421 A422 A423 A424 A425 A426 A427 A428 A429 A430 A539 A657 A758 A759 A760 A761 A762 A763 A764 A765 A766 A767 A768 A769 A770 A771 A940 A980 C108 C550 C730 C801 C802 C803 C804 C805 C807 M411 M781 M904 M905 N161 Q130 Q431 R038 R043 0072-78102-K 0072-78102-U

06 A212 A220 A238 A256 A331 A349 A383 A421 A539 A540 A541 A657 A672 A758 A762 A764 A768 A770 A890 A940 A980 C108 C550 C730 C801 C802

C803 C804 C805 C807 M411 M781 M904 M905 N161 Q130 Q431 R038 R043
0072-78101-K 0072-78101-U
Polymer Indexing (PS):
<01>
001 018; R00964 G0044 G0033 G0022 D01 D02 D12 D10 D51 D53 D58 D83;
H0000; S9999 S1376; P1150 ; P1343
002 018; P0635-R F70 D01
003 018; R00975 G0022 D01 D12 D10 D51 D53 D59 D69 D82 F- 7A; H0000;
P0511
004 018; R00708 G0102 G0022 D01 D02 D12 D10 D19 D18 D31 D51 D53 D58 D76
D88; H0000; S9999 S1456-R; P1741 ; P1752
005 018; ND01; Q9999 Q8060; Q9999 Q7409 Q7330; Q9999 Q7396 Q7330
Derwent Registry Numbers: 1779-P; 1779-U
Specific Compound Numbers: R01779-K; R01779-P; RA83G7-K; RA83G7-U
Generic Compound Numbers: 0072-78104-K; 0072-78104-U; 0072-78103-K;
0072-78103-U; 0072-78102-K; 0072-78102-U; 0072-78101-K; 0072-78101-U
Key Word Indexing Terms:
01 217-0-0-0-CL, PRD 590994-0-0-0-CL, USE 0072-78104-CL, USE
0072-78103-CL, USE 0072-78102-CL, USE 0072-78101-CL, USE

32/9/6 (Item 2 from file: 350)
DIALOG(R)File 350:Derwent WPIX

014350790 **Image available**
WPI Acc No: 2002-171493/200222
Related WPI Acc No: 2001-071118
XRAM Acc No: C02-052954
XRPX Acc No: N02-130464
Battery having thin profile and flexible structure for use in electronic devices comprises assembly of electrode , **separator and counter** electrode , sandwiched between two **outermost** current collectors
Patent Assignee: VALENCE TECHNOLOGY INC (VALE-N)
Inventor: GROSS O J
Number of Countries: 096 Number of Patents: 002
Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week	
WO 200195408	A2	20011213	WO 2001US17097	A	20010525	200222	B
AU 200165021	A	20011217	AU 200165021	A	20010525	200225	

Priority Applications (No Type Date): US 2000586849 A 20000605
Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
WO 200195408	A2	E	17	H01M-000/00	

Designated States (National): AE AG AL AM AT AU AZ BA BB BG BR BY BZ CA CH CN CO CR CU CZ DE DK DM DZ EC EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MA MD MG MK MN MW MX MZ NO NZ PL PT RO RU SD SE SG SI SK SL TJ TM TR TT TZ UA UG US UZ VN YU ZA ZW
Designated States (Regional): AT BE CH CY DE DK EA ES FI FR GB GH GM GR IE IT KE LS LU MC MW MZ NL OA PT SD SE SL SZ TR TZ UG ZW

AU 200165021	A		H01M-000/00	Based on patent WO 200195408

Abstract (Basic): WO 200195408 A2
NOVELTY - The battery comprises an assembly of an **anode** , a counter **electrode** and a separator disposed between **anode** and counter **electrode** . The assembly is **sandwiched between two** outermost **current collectors** (12, 14) to form a package. A seal (16) is disposed **between** the **two current collectors** for sealing the package.
DETAILED DESCRIPTION - An INDEPENDENT CLAIM is also included for battery manufacturing method.
USE - For use as back-up or secondary power supply for electronic devices such as microelectronic application e.g. smart cards, keep-alive circuitry, or low power transponders, especially for portable or hand-held devices.
ADVANTAGE - The battery has thin profile and flexible structure, formed by current collectors. The seal functions to provide an airtight

and water tight package while maintaining the **current collectors** in **spaced** -apart relationship.

DESCRIPTION OF DRAWING(S) - The figure shows perspective view of a battery having a thin profile and flexible structure.

Battery (10)

Current collectors (12, 14)

Seal (16)

pp; 17 DwgNo 1/4

Technology Focus:

TECHNOLOGY FOCUS - **POLYMERS** - Preferred Materials: The **electrode**, separator and the counter **electrode** comprises a flexible **polymer** film material such as polyvinylidene difluoride-co-hexafluoropropylene (PVDF-co-HFP). The seal comprises ethylene acrylic acid.

METALLURGY - Preferred Materials: The two counter collectors comprises a flexible metal foil material.

The current collector (14) comprises aluminum foil

Title Terms: BATTERY; THIN; PROFILE; FLEXIBLE; STRUCTURE; ELECTRONIC; DEVICE; COMPRISE; ASSEMBLE; **ELECTRODE** ; SEPARATE; COUNTER; **ELECTRODE** ; SANDWICH; TWO; OUTER; CURRENT; COLLECT

Derwent Class: A85; L03; X16

International Patent Class (Main): H01M-000/00

File Segment: CPI; EPI

Manual Codes (CPI/A-N): A12-E06; L03-E02; L03-E03

Manual Codes (EPI/S-X): X16-A; X16-B; X16-F01A

Polymer Indexing (PS):

<01>

001 018; R00363 G0555 G0022 D01 D12 D10 D51 D53 D58 D69 D82 F- 7A; R00976 G0022 D01 D12 D10 D51 D53 D59 D69 D83 F- 7A; H0022 H0011; S9999 S1285-R; P0555

002 018; ND01; Q9999 Q7341 Q7330; Q9999 Q7330-R; Q9999 Q7498 Q7330; Q9999 Q9029; Q9999 Q8253 Q8173

003 018; Q9999 Q7409 Q7330; B9999 B4035 B3930 B3838 B3747; K9552 K9483; K9701 K9676

<02>

001 018; R00326 G0044 G0033 G0022 D01 D02 D12 D10 D51 D53 D58 D82; R00446 G0282 G0271 G0260 G0022 D01 D12 D10 D26 D51 D53 D58 D60 D83 F36 F35; H0022 H0011; P1150 ; P0088 ; P0168

002 018; ND01; Q9999 Q7341 Q7330; Q9999 Q7330-R; Q9999 Q7498 Q7330; Q9999 Q9029; Q9999 Q8253 Q8173

003 018; Q9999 Q9018; K9552 K9483; K9701 K9676; K9712 K9676

32/9/7 (Item 3 from file: 350)

DIALOG(R)File 350:Derwent WPIX

013892847 **Image available**

WPI Acc No: 2001-377060/200140

XRAM Acc No: C01-115424

XRPX Acc No: N01-276002

Molded electrode **for use in secondary battery comprises** electrode **material with** polymer **active material, conductivity-enhancer and plasticizer, molded in one piece with current collector sheet**

Patent Assignee: NEC CORP (NIDE)

Inventor: FUJIWARA M; HARADA G; KANEKO S; KUROSAKI M; NAKAGAWA Y; NISHIYAMA T

Number of Countries: 002 Number of Patents: 002

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week	
GB 2355579	A	20010425	GB 200025172	A	20001013	200140	B
JP 2001118565	A	20010427	JP 99292537	A	19991014	200141	

Priority Applications (No Type Date): JP 99292537 A 19991014

Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
GB 2355579	A		64	H01M-010/40	
JP 2001118565	A		15	H01M-004/02	

Abstract (Basic): GB 2355579 A

NOVELTY - Molded **electrode** comprises an **electrode** material (2) and at least one current collector sheet (3). The **electrode** material includes a **polymer** active material, a conductivity-enhancing agent and a plasticizer, and is molded or formed into one piece with the collector sheet.

DETAILED DESCRIPTION - INDEPENDENT CLAIMS are included for:

(1) A process of forming a molded **electrode** by hot-pressing; and

(2) A secondary battery which uses the molded **electrode** as the positive and/or negative **electrode** .

USE - As an **electrode** using a **polymer** active material in a secondary battery.

ADVANTAGE - The use of hot-pressing avoids solvent application, during which the solvent evaporates and often generates cracks in the film. The method also enables a thick film to be formed. The energy density of the battery is enhanced relative to previous devices, since the ratio of active material to current collector volume is increased. The plasticizer is chosen to minimize electrical resistance and so maximize power density. Since the **electrode** is not limited to a sheet-type, there is greater scope in battery design.

DESCRIPTION OF DRAWING(S) - The drawing shows a sectional view of a molded **electrode** .

Electrode material (2)
Current collector sheet (3)
Terminal (4)
pp; 64 DwgNo 1/6

Technology Focus:

TECHNOLOGY FOCUS - ELECTRICAL POWER AND ENERGY - Preferred **Electrode** : The **electrode** material is formed on at least one side of the current collector sheet(s) to a thickness of between 300 microns and 9 mm. A number of (at least **two**) **current collector** sheets are **spaced** from each other in the direction of the **electrode** thickness. The ratio of the volume of the **electrode** material and the volume of the current collector sheet (excluding the volume of the terminal portion (4) of the **current collector** sheet) is **between** 30:1 and 100:1. The amount of plasticizer is 2-15% by weight of the total of the **electrode** material.

Preferred Process: The hot-pressing step forms a molded material. **Electrode** manufacture involves hot-pressing the molded material, the same **electrode** material and a different current collector sheet and/or laminating and hot-pressing a number of molded materials together, to form a one-piece molded **electrode** . An uneven die is used in the hot-pressing to form an uneven surface on the **electrode** material.

Title Terms: **ELECTRODE** ; SECONDARY; BATTERY; COMPRISE; **ELECTRODE** ; MATERIAL; **POLYMER** ; ACTIVE; MATERIAL; CONDUCTING; ENHANCE; ONE; PIECE; CURRENT; COLLECT; SHEET

Derwent Class: A32; A85; L03; X16

International Patent Class (Main): **H01M-004/02** ; **H01M-010/40**

International Patent Class (Additional): **H01M-004/04**

File Segment: CPI; EPI

Manual Codes (CPI/A-N): **A08-M09A** ; A08-P01; **A09-A03** ; A11-B01; **A12-E06A** ; **L03-E01B**

Manual Codes (EPI/S-X): X16-E08A

Polymer Indexing (PS):

<01>
001 018; P0000; S9999 S1434
002 018; ND01; ND07; N9999 N6440-R; Q9999 Q7341 Q7330; Q9999 Q7409 Q7330; B9999 B5243-R B4740; B9999 B5378 B5276; N9999 N6462 N6440
003 018; A999 A135; B9999 B3269 B3190
004 018; A999 A384

32/9/8 (Item 4 from file: 350)

013145692 **Image available**

WPI Acc No: 2000-317564/200027
XRAM Acc No: C00-096052
XRPX Acc No: N00-238372

Ultracapacitor for creating and storing energy, has two **nonporous** current collectors , **two electrodes** separating **the** electrodes , **a separator between the** electrodes **and an** electrolyte

Patent Assignee: GENERAL ELECTRIC CO (GENE)
Inventor: JERABEK E C; LEBLANC O H; WEI C; CHANG W
Number of Countries: 020 Number of Patents: 002
Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week	
WO 200019463	A1	20000406	WO 99US22321	A	19990928	200027	B
US 6256190	B1	20010703	US 98162527	A	19980929	200140	

Priority Applications (No Type Date): US 98162527 A 19980929
Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
WO 200019463	A1	E	26	H01G-009/00	
				Designated States (National): JP	
				Designated States (Regional): AT BE CH CY DE DK ES FI FR GB GR IE IT LU MC NL PT SE	
US 6256190	B1			H01G-009/00	

Abstract (Basic): WO 200019463 A1

NOVELTY - Ultracapacitor (10) has at least one cell comprising two solid, nonporous current collectors (22); two porous **electrodes** (14, 16) **separating** the **current collectors** ; a porous **separator** (18) between the **electrodes** ; and an **electrolyte** (20) occupying pores in the **electrodes** and separator, and which includes a cyclic carbonate solvent, and a cyclic ester solvent and an **electrolyte** salt.

DETAILED DESCRIPTION - INDEPENDENT CLAIMS are also included for the following:

(A) a stack of ultracapacitor cells;

(B) a method of making an ultracapacitor, comprising sealing the cell to form the ultracapacitor; and

(C) a method of making a stack of ultracapacitor cells, comprising providing bipolar double layer ultracapacitor cells in stacked relationship and a non-porous **current collector between** each cell with each collector having adjoining polarized **electrodes** of different cells bonded, saturating the **electrodes** and separators with the **electrolyte** , and sealing the cells, **current collectors** , and **separators** to form a stack of ultracapacitor.

USE - Ultracapacitor is used for creating and storing energy.

ADVANTAGE - The improved **electrolyte** composition has increased conductivity and lower internal resistance which in turn provides power and energy performance enhancement, and cost reduction in an ultracapacitor.

DESCRIPTION OF DRAWING(S) - The drawing shows a front sectional view of an ultracapacitor.

Ultracapacitor (10)
Electrodes (14, 16)
Separator (18)
Electrolyte (20)
Collectors (22)
pp; 26 DwgNo 1/4

Technology Focus:

TECHNOLOGY FOCUS - ORGANIC CHEMISTRY - Preferred Components: The **electrolyte** comprises additional aprotic organic solvent(s) comprising a chain carbonate, preferably dimethyl carbonate (DMC). The cyclic carbonate solvent comprises propylene carbonate (PC). The cyclic ester solvent comprises gamma-butyrolactone (GBL).

INORGANIC CHEMISTRY - Preferred Collectors: The current collectors comprise an aluminum substrate, or carbon.

Preferred **Electrolyte** : The **electrolyte** salt comprises a quaternary ammonium salt preferably tetraethylammonium tetrafluoroborate salt, a hexasubstituted quanidium salt or a lithium salt.

POLYMERS - Preferred Separator: The separator is polypropylene or

cellulosic tissue material
Title Terms: STORAGE; ENERGY; TWO; CURRENT; COLLECT; TWO; **ELECTRODE** ; SEPARATE; **ELECTRODE** ; SEPARATE; **ELECTRODE** ; ELECTROLYTIC
Derwent Class: A85; E19; L03; V01; X16
International Patent Class (Main): H01G-009/00
International Patent Class (Additional): H01G-009/022; H01G-009/038
File Segment: CPI; EPI
Manual Codes (CPI/A-N): A12-E07B; E05-A; E07-A02C; E07-A02G; E07-A03C; E07-A04; E10-A17B; E10-A22G; E31-N04; E33-G; L03-B03A
Manual Codes (EPI/S-X): V01-B01B3; V01-B01B5; V01-B01D1; V01-B01X; X16-L02
Chemical Fragment Codes (M3):
01 A313 C810 M411 M424 M740 M782 M904 M905 Q010 Q130 Q454 R038 R043 R03167-K R03167-M
02 C106 C810 M411 M424 M740 M782 M904 M905 M910 Q010 Q130 Q454 R038 R043 R01669-K R01669-M R05085-K R05085-M
03 H7 H721 M210 M213 M231 M320 M423 M424 M510 M520 M530 M540 M610 M740 M782 M904 M905 M910 Q010 Q130 Q454 R043 RA009X-K RA009X-M
04 M423 M424 M740 M782 M904 M905 M910 Q010 Q130 Q454 R043 R01852-K R01852-M
05 B205 B720 B752 B809 B831 C009 C100 C800 C803 C804 C805 C806 C807 H1 H181 K0 L7 L722 M210 M212 M273 M283 M320 M411 M424 M510 M520 M530 M540 M620 M640 M740 M782 M904 M905 Q010 Q130 Q454 R023 R03324-K R03324-M
06 A103 A940 A960 C710 C730 M411 M417 M424 M740 M782 M904 M905 Q010 Q130 Q454 R023 R07763-K R07763-M
07 K0 L2 L250 L7 L722 M210 M211 M212 M213 M214 M215 M216 M220 M221 M222 M223 M224 M225 M226 M231 M232 M233 M273 M283 M320 M416 M424 M620 M640 M650 M740 M782 M904 M905 Q010 Q130 Q454 R023 0016-71402-K 0016-71402-M
08 F012 F014 F140 J5 J521 L9 L922 M210 M211 M240 M281 M320 M413 M424 M510 M521 M530 M540 M740 M782 M904 M905 M910 Q010 Q130 Q454 Q615 R023 R00844-K R00844-M
09 F012 F113 J5 J521 L9 L942 M280 M320 M413 M424 M510 M521 M530 M540 M740 M782 M904 M905 M910 Q010 Q130 Q454 Q615 R023 R00644-K R00644-M
10 F021 J5 J521 L9 L922 L942 M280 M320 M413 M424 M510 M521 M530 M540 M740 M782 M904 M905 Q010 Q130 Q454 Q615 R023 0016-71401-K 0016-71401-M
Polymer Indexing (PS):
<01>
001 018; R00964 G0044 G0033 G0022 D01 D02 D12 D10 D51 D53 D58 D83; H0000; P1150 ; P1343
002 018; G3634-R D01 D03 D11 D10 D23 D22 D31 D42 D76 F24 F34 H0293 P0599 G3623
003 018; ND01; Q9999 Q7363 Q7330
Derwent Registry Numbers: 0644-U; 0844-U; 1669-U; 1852-U
Specific Compound Numbers: R03167-K; R03167-M; R01669-K; R01669-M; R05085-K ; R05085-M; RA009X-K; RA009X-M; R01852-K; R01852-M; R03324-K; R03324-M; R07763-K; R07763-M; R00844-K; R00844-M; R00644-K; R00644-M
Generic Compound Numbers: 0016-71402-K; 0016-71402-M; 0016-71401-K; 0016-71401-M
Key Word Indexing Terms:
01 110-0-0-0-CL 2211-0-0-0-CL 104471-0-0-0-CL 90356-0-0-0-CL 392-0-0-0-CL 99497-0-0-0-CL 1956-0-0-0-CL 780-0-0-0-CL 0016-71402-CL 0016-71401-CL

32/9/9 (Item 5 from file: 350)
DIALOG(R)File 350:Derwent WPIX

012923792 **Image available**
WPI Acc No: 2000-095628/200008
XRAM Acc No: C00-027776
XRPX Acc No: N00-073758
Electrochemical cell with ion exchange polymer **separator for fuel cells**
Patent Assignee: DU PONT DE NEMOURS & CO E I (DUPO)
Inventor: BANERJEE S; BLOOMFIELD D P; FERRIS J J; POLEVAYA O Y
Number of Countries: 001 Number of Patents: 001

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
US 5989741	A	19991123	US 9749116	A	19970610	200008 B
			US 9749672	A	19970616	
			US 9893319	A	19980608	

Priority Applications (No Type Date): US 9893319 A 19980608; US 9749116 P 19970610; US 9749672 P 19970616

Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
US 5989741	A		11	H01M-008/10	Provisional application US 9749116 Provisional application US 9749672

Abstract (Basic): US 5989741 A

NOVELTY - A cell has a separator with an **anode** surface (18) of **anodes** (20) and **cathode** surface (22) of **cathodes** (24) and exposed to their corresponding compartments. The **electrodes** with electrically conductive catalyst particles are separated by an ion exchange **polymer** (26). The **electrodes** are connected with each other to form a cells. A feed region (32) connects the **electrodes** of adjacent cells.

DETAILED DESCRIPTION - An electrochemical cell (10) has an **anode** (12), **cathode** compartment (14) separated by a separator (16).The **separator** contains **several current collector** screen (30). A feed through region connects the **anode** and **cathode** of adjacent cells.

An INDEPENDENT CLAIM is also included for the process of making a separator in which conductive screens, sheets of thermoplastic ion exchange precursor are overlapped such that sheets are positioned between adjacent screens. The laminate is pressed by heating to a sufficient temperature such that the **polymers** are softened and the screens get attached to form unitary structure with first and second surfaces. The screen at the overlapped portion is separated by ion exchange **polymer** precursor. Subsequently ion exchange **polymer** is hydrolyzed and several **electrodes** with electrically conductive catalyst particle are arranged side by side on the first and second unitary structure of overlapped portion. The **electrodes** on the first side is connected to the second side to form counter **electrode** pairs.

USE - For fuel cells in production of electrical energy.

ADVANTAGE - The ion exchange **polymer electrolyte** is less complicated, lighter and easier for transportation. The **anodes** and **cathodes** has good gas permeability. The collector screen and the ion exchanger resin, are partially embedded to enhance permeability of gases. The electricity cost is reduced when electrochemical cell is used.

DESCRIPTION OF DRAWING(S) - The figure shows the cross sectional view of the electrochemical cell.

Electrochemical cell (10)
Anode (12)
Cathode compartment (14)
Separator (16)
Anode surface (18)
Anodes (20)
Cathode surface (22)
Cathodes (24)
Ion exchange **polymer** (26)
Current collector screen (30)
Feed region (32)
pp; 11 DwgNo 1/4

Technology Focus:

TECHNOLOGY FOCUS - INORGANIC CHEMISTRY - Preferred Cell: The collector current has an open area of 55-65%. The collector screens are flexible and made of metal, slit or expanded titanium sheets. The slit and titanium metal sheets has a coating of titanium nitride. The collector screens contains layer(s) reinforced with the separator to at least 93% of the collector area. The pressing process is performed at 200-260 degreesC and hydrolyzing is performed before the **electrodes** are formed to unitary structure. The screens has an open region of 55-65 %. The collector screen is sole electrical conductor between adjacent cells. The collector screen is partially embedded in ion

exchange **polymer** at **anode** contact region and **cathode** contact region such that the ion exchange **polymer** partially fills the pores of the **polymer** screen. The ion exchange **polymer** inter penetrates the feed through region to prevent the bulk flow of material between **anode** and **cathode** compartment. The ion exchange **polymer** is fluorinated sulfonic acid **polymer** . The pressing causes **current collector** screen to partially **embed** in thermoplastic ion exchange **polymer** at the overlapped region such that the **polymer** precursor partially fills the pores of the screen. The screens and sheets which are elongated are overlapped along the length direction and pressed to form unitary structure. Subsequently, the unitary structure is cut to predetermined length. The sheets and screens are positioned and pressed continuously. The polyurethane adhesive film is formed on the surface of the separator and pressed by heat and contacting to the periphery of the separator.

Title Terms: ELECTROCHEMICAL; CELL; ION; EXCHANGE; **POLYMER** ; SEPARATE; FUEL; CELL
Derwent Class: A85; L03; X16
International Patent Class (Main): **H01M-008/10**
File Segment: CPI; EPI
Manual Codes (CPI/A-N): A10-E09; A11-B09A2; A11-C01A; A12-E06B; A12-E09; A12-M; L03-E04
Manual Codes (EPI/S-X): X16-C01C; X16-E06A
Polymer Indexing (PS):
<01>
001 018; D60 F62 S- 6A O- F- 7A; H0317; S9999 S1581; L9999 L2391; L9999 L2313; M9999 M2313; P0500 F- 7A
<02>
001 018; P1592-R F77 D01; S9999 S1581
002 018; ND01; ND07; N9999 N7192 N7023; N9999 N5721-R; K9416; K9701 K9676; Q9999 Q7410 Q7330; Q9999 Q7396 Q7330; Q9999 Q7818-R; K9483-R ; K9574 K9483; K9610 K9483
003 018; Q9999 Q9018; Q9999 Q6644-R

32/9/10 (Item 6 from file: 350)
DIALOG(R)File 350:Derwent WPIX

011469293 **Image available**
WPI Acc No: 1997-447200/199741
XRPX Acc No: N97-372696
Piezoelectric vibration converter for internal combustion engine diagnostics - has piezo-element in form of vibrator used as sensing unit, polymeric yoke acting as filter and current collecting metallic plates
Patent Assignee: KOSHETOV A A (KOSH-I)
Inventor: FEDOROV V V; KOSHETOV A A
Number of Countries: 001 Number of Patents: 001
Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week	
RU 2075048	C1	19970310	RU 9413437	A	19940418	199741	B

Priority Applications (No Type Date): RU 9413437 A 19940418
Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
RU 2075048	C1		5	G01L-023/10	

Abstract (Basic): RU 2075048 C
Vibrator power supply comprises the yoke (9) made of a **polymer** and placed in its body (1). The yoke (9) acts as a filter and has the piezo-element (11) arranged in its groove. One half of the piezo-element (11) is tightly compressed **between two current collecting** plates (10) and the other part is free. The yoke (9) with the piezo-element (11) is placed in the spacer bar between the vibro-probe (3) and the screw (6) controlling the vibrator power supply sensitivity. The yoke (9) free position inside the body (1) allows the piezo-crystal to form a signal entering the vibro-probe (3) and the sensor (11) through the yoke (9) surface.

The deformation wave passing through the vibro- probe (3) retains the mechanical wave intensity and enters the yoke (9) surface where it scatters. A vibration pulse representing the data is formed. The pulse enters the piezo- element (11) surface. The yoke with the piezo-crystal (11) is placed inside the body in such a way that the temperature effect on the vibration processes measurement is eliminated. The vibrator power supply is mounted on the body (1) surface of the mechanism to be diagnosed with the help of magnetic plates (4) fixed on the metallic disk (2) body. The vibro-probe (3) contacts the mechanism through an opening in the guiding sleeve.

USE/ADVANTAGE - For internal combustion engine, reduction gear and metal cutting machine diagnostics. Vibrator power supply structure is simplified and measuring accuracy is increased.

Dwg.1/3

Title Terms: PIEZOELECTRIC; VIBRATION; CONVERTER; INTERNAL; COMBUST; ENGINE ; DIAGNOSE; PIEZO; ELEMENT; FORM; VIBRATION; SENSE; UNIT; **POLYMERISE** ; YOKE; ACT; FILTER; CURRENT; COLLECT; METALLIC; PLATE

Derwent Class: S02

International Patent Class (Main): G01L-023/10

File Segment: EPI

Manual Codes (EPI/S-X): S02-E; S02-F04D3; S02-J01A

32/9/11 (Item 7 from file: 350)

DIALOG(R)File 350:Derwent WPIX

011086859 **Image available**

WPI Acc No: 1997-064783/199706

Related WPI Acc No: 1994-092324; 1995-107008; 1995-215410; 1995-245707; 1996-011167; 1996-019761; 1996-361855; 1996-505380

XRAM Acc No: C97-021261

XRPX Acc No: N97-053372

Low resistance rechargeable lithium ion battery - with perforated current collector embedded **in polymeric intercalation** electrodes **to reduce resistance**

Patent Assignee: BELL COMMUNICATIONS RES INC (BELL-N)

Inventor: GOZDZ A S; SCHMUTZ C N; TARASCON J; WARREN P C

Number of Countries: 027 Number of Patents: 010

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week	
US 5587253	A	19961224	US 9326904	A	19930305	199706	B
			US 93110262	A	19930823		
			US 93160018	A	19931130		
			US 95510835	A	19950803		
WO 9706569	A1	19970220	WO 96US11732	A	19960715	199714	
AU 9664571	A	19970305	AU 9664571	A	19960715	199726	
EP 842547	A1	19980520	EP 96923775	A	19960715	199824	
			WO 96US11732	A	19960715		
TW 324113	A	19980101	TW 96109321	A	19960802	199827	
JP 10510669	W	19981013	WO 96US11732	A	19960715	199851	
			JP 97508441	A	19960715		
AU 700453	B	19990107	AU 9664571	A	19960715	199913	
MX 9800869	A1	19980401	MX 98869	A	19980130	200004	
IL 118907	A	20000131	IL 118907	A	19960722	200015	
JP 3164586	B2	20010508	WO 96US11732	A	19960715	200128	
			JP 97508441	A	19960715		

Priority Applications (No Type Date): US 95510835 A 19950803; US 9326904 A 19930305; US 93110262 A 19930823; US 93160018 A 19931130

Cited Patents: US 4939050; US 5004657

Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
US 5587253	A		15	H01M-004/64	CIP of application US 9326904
					CIP of application US 93110262
					CIP of application US 93160018
					CIP of patent US 5296318
					CIP of patent US 5418091

CIP of patent US 5460904

WO 9706569 A1 E 29 H01M-004/64
Designated States (National): AU CA JP KR MX SG VN
Designated States (Regional): AT BE CH DE DK ES FI FR GB GR IE IT LU MC NL PT SE

AU 9664571	A		H01M-004/64	Based on patent WO 9706569
EP 842547	A1 E		H01M-004/64	Based on patent WO 9706569
Designated States (Regional): BE DE DK ES FI FR GB IE IT NL SE				
TW 324113	A		H01M-010/36	
JP 10510669	W	25	H01M-010/40	Based on patent WO 9706569
AU 700453	B		H01M-004/64	Previous Publ. patent AU 9664571 Based on patent WO 9706569
MX 9800869	A1		H01M-004/64	
IL 118907	A		H01M-004/64	
JP 3164586	B2	10	H01M-010/40	Previous Publ. patent JP 10510669 Based on patent WO 9706569

Abstract (Basic): US 5587253 A

A rechargeable Li ion battery comprises positive (23) and negative (27) **electrode layer** elements with **current collectors** (21) and a **separator** between them (25). Each element comprises a flexible **polymer** matrix bonded to a unitary flexible structure, the positive element comprises a Li ion-intercalating cpd. selected from LixMn2O4, LixCoO2 and LixNiO2 and at least one of the **current collectors** is **embedded** within its **electrode** layer.

Also claimed is a battery structure as above comprising many positive elements as above, a negative element between each of the positives contg. C as a Li-intercalating material, many flexible **polymer** sepn. elements contg. an organic soln. of a dissociable Li salt and sepg. the negative and positive **electrodes** , and **many embedded current collectors** , the whole forming a unitary flexible structure.

USE - Used for flexible rechargeable Li ion batteries

ADVANTAGE - The distance between the **electrode layer** and **current collector** is reduced thus lowering internal resistance. Cell capacity is also increased.

Dwg.2/9

Title Terms: LOW; RESISTANCE; RECHARGE; LITHIUM; ION; BATTERY; PERFORATION; CURRENT; COLLECT; EMBED; **POLYMERISE** ; INTERCALATED; **ELECTRODE** ; REDUCE; RESISTANCE

Derwent Class: A85; L03; X16

International Patent Class (Main): **H01M-004/64** ; **H01M-010/36** ; **H01M-010/40**

International Patent Class (Additional): H01M-002/16; **H01M-004/02** ; **H01M-004/62**

File Segment: CPI; EPI

Manual Codes (CPI/A-N): A12-E06B; L03-E01B5

Manual Codes (EPI/S-X): X16-B01F1; X16-E02

Polymer Indexing (PS):

<01>

001 018; R00363 G0555 G0022 D01 D12 D10 D51 D53 D58 D69 D82 F- 7A; H0011-R; S9999 S1285-R

002 018; ND01; Q9999 Q7341 Q7330; Q9999 Q7498 Q7330; B9999 B4035 B3930 B3838 B3747

003 018; A999 A384

32/9/12 (Item 8 from file: 350)

DIALOG(R)File 350:Derwent WPIX

010966584 **Image available**

WPI Acc No: 1996-463533/199646

Related WPI Acc No: 1995-392601

XRAM Acc No: C96-145496

XRPX Acc No: N96-390405

Improved lithium ion battery having reduced corrosion - has electrodes **on which** current collectors **comprise** polymer layer **contg.**

electroconductive particles
Patent Assignee: DASGUPTA S (DASG-I); JACOBS J K (JACO-I)
Inventor: DASGUPTA S; JACOBS J K
Number of Countries: 001 Number of Patents: 001
Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
US 5547782	A	19960820	US 94204439	A	19940302	199646 B
			US 95402359	A	19950313	

Priority Applications (No Type Date): US 94204439 A 19940302; US 95402359 A 19950313
Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
US 5547782	A		7	H01M-004/66	Div ex application US 94204439 Div ex patent US 5464706

Abstract (Basic): US 5547782 A
Improved lithium ion battery has an **anode** comprising a positive active material capable of reacting with lithium ions in discharging the battery and releasing lithium ions in charging the battery, the **anode** having two opposing major faces; a **cathode** comprising a negative active material capable of releasing lithium ions in discharging the battery and intercalating lithium ions in charging the battery, the negative **electrode** having two opposing major faces; a non-aq. **electrolyte** contg. a lithium salt capable of ionic dissociation; a first current collector in contact with a distal major face of the **anode** ; a **second current collector** in contact with a distal major face of the **cathode** ; and metallic electrical lead means in juxtaposed content position with of external face of each of the current collectors. The first current collector is an electroconductive, continuous and coherent **polymer** layer, the **polymer** layer consisting essentially of an electrically non-conductive, continuous and coherent **polymer** laminate having a thickness, and having dispersed in it more than 35 vol.% electroconductive particles e.g. titanium nitride, zirconium nitride, fine carbon, carbon black or carbon fibres. The conductive particles has major and minor dimensions.
USE - The current collectors are used in lithium ion batteries.
ADVANTAGE - The current collectors reduce corrosive interaction with the **electrode** fuse.
Dwg.1/4
Title Terms: IMPROVE; LITHIUM; ION; BATTERY; REDUCE; CORROSION; **ELECTRODE** ; CURRENT; COLLECT; COMPRISE; **POLYMER** ; LAYER; CONTAIN; ELECTROCONDUCTING; PARTICLE
Derwent Class: A85; L03; X16
International Patent Class (Main): **H01M-004/66**
File Segment: CPI; EPI
Manual Codes (CPI/A-N): **A08-M09A** ; **A09-A03** ; A12-E06; L03-E01B5
Manual Codes (EPI/S-X): X16-A02A; X16-B01F1; X16-E02
Polymer Indexing (PS):
<01>
001 018; R00964 G0044 G0033 G0022 D01 D02 D12 D10 D51 D53 D58 D83; H0000; S9999 S1456-R; P1150 ; P1343
002 018; ND01; K9416; Q9999 Q7341 Q7330; Q9999 Q7818-R; K9701 K9676; K9483-R; B9999 B5209 B5185 B4740; B9999 B4591 B4568; B9999 B3270 B3190; B9999 B5243-R B4740
003 018; D00 N- 5A Ti 4B Tr; A999 A135; S9999 S1456-R
004 018; D00 N- 5A Ti 4B Tr; A999 A135; S9999 S1456-R
005 018; R01669 D00 D09 C- 4A; R05085 D00 D09 C- 4A; S9999 S1456-R; A999 A135
006 018; R05086 D00 D09 C- 4A; A999 A135; S9999 S1456-R
<02>
001 018; R00964 G0044 G0033 G0022 D01 D02 D12 D10 D51 D53 D58 D83; H0000; S9999 S1581; P1150 ; P1343
002 018; ND01; K9416; Q9999 Q6780; Q9999 Q7341 Q7330

32/9/13 (Item 9 from file: 350)

DIALOG(R)File 350:Derwent WPIX

009887855 **Image available**
WPI Acc No: 1994-167770/199420
XRPX Acc No: N94-132008
Polymer electrolyte **battery - has liq.** electrolyte **substituted for layers of** polymer electrolyte **isolating** electrodes **from different potential** electrodes **in multi-cell battery**
Patent Assignee: VALENCE TECHNOLOGY INC (VALE-N)
Inventor: CHEU S S
Number of Countries: 046 Number of Patents: 003
Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week	
WO 9410710	A1	19940511	WO 93US10346	A	19931028	199420	B
AU 9455418	A	19940524	WO 93US10346	A	19931028	199434	
			AU 9455418	A	19931028		
US 5674641	A	19971007	US 92968368	A	19921029	199746	

Priority Applications (No Type Date): US 92968368 A 19921029
Cited Patents: EP 199476; GB 1209336; US 3005864; US 3201279
Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
WO 9410710	A1	E	41	H01M-002/26	

Designated States (National): AT AU BB BG BR BY CA CH CZ DE DK ES FI GB HU JP KP KR KZ LK LU LV MG MN MW NL NO NZ PL PT RO RU SD SE SK UA UZ VN
Designated States (Regional): AT BE CH DE DK ES FR GB GR IE IT LU MC NL OA PT SE

AU 9455418	A		H01M-002/26	Based on patent WO 9410710
US 5674641	A	14	H01M-006/18	

Abstract (Basic): WO 9410710 A
Electrodes in a multi-cell battery are separated by layers of **polymer electrolyte** from different potential **electrodes** . A number of batteries are stacked, the **electrodes** of each being electrically connected along with potential **electrodes** giving module desired power characteristics.
Electrically conductive spaces connect tabs on **electrodes** and different potential **electrodes** to those on others. They also prevent damage to the tabs from excessive bending.
ADVANTAGE - Small, lightweight, reduces **number** of **current collectors** .
Dwg.1/8

Abstract (Equivalent): US 5674641 A
A laminar electrochemical cell having an **anode** that includes an **anode current collector** and a **layer** of **anode** material that is applied on a surface of the **anode** current collector, a **cathode** that includes a **cathode** collector and a layer of **cathode** material that is applied on a surface of the **cathode** current collector, and a **polymer electrolyte** that is interposed between the **anode** and **cathode** with said **polymer electrolyte** being in contact with a surface of the **anode** material and with a surface of the **cathode** material, wherein the improvement comprises means for masking at least a portion of the outer periphery of the **anode** material sufficient to prevent electrical contact of the **anode** material to the **cathode** material.
Dwg.8/8

Title Terms: **POLYMER** ; ELECTROLYTIC; BATTERY; LIQUID; ELECTROLYTIC; SUBSTITUTE; LAYER; **POLYMER** ; ELECTROLYTIC; ISOLATE; **ELECTRODE** ; POTENTIAL; **ELECTRODE** ; MULTI; CELL; BATTERY
Derwent Class: X16
International Patent Class (Main): H01M-002/26; **H01M-006/18**
International Patent Class (Additional): **H01M-006/46**
File Segment: EPI
Manual Codes (EPI/S-X): X16-A; X16-F03A; X16-F06

32/9/14 (Item 10 from file: 350)

009703620 **Image available**
WPI Acc No: 1993-397173/199350
XRAM Acc No: C93-176735
XRPX Acc No: N93-306986

Electrochemical generators and super condensers prodn. - by conductive ion ink screen printing current collector , **electrode, electrolytic** separator **and encapsulating layers in situ e.g. on circuit board with electronically conductive material**

Patent Assignee: ALCATEL ALSTHOM CIE GEN ELECTRICITE (COGE)
Inventor: ANDRIEU X; BOEUVE J

Number of Countries: 001 Number of Patents: 001
Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week	
FR 2690567	A1	19931029	FR 925094	A	19920424	199350	B

Priority Applications (No Type Date): FR 925094 A 19920424
Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
FR 2690567	A1		5	H01M-006/40	

Abstract (Basic): FR 2690567 A

The prodn. comprises stacking a first current collector, a first **electrode** , an electrolytic separator, a second **electrode** , a **second current collector** and an encapsulating agent, and (i) a conductive ionic screen printing ink is prepd. comprising an intimate mixt. of (a) an ionically conductive **polymer** , (b) a soluble salt which is dissociated in the **polymer** and (c) a solvent with a low vapour pressure in which the **polymer** (a) and the soluble salt (b) are soluble; (ii) to fabricate the **electrode** (s), a homogeneous powdered mixt. of an electrochemically active material (I) and an electronically conductive material (II) in an amt. of 0-30 wt.% w.r.t. the (I) is incorporated into the conductive ionic ink (i); (iii) the first **electrode** is obtd. by screen printing layer(s) of the compsn. (ii) onto the first current collector; and (iv) the electrolytic separator is obtd. by screen printing layer(s) of the conductive ionic screen printing ink onto the first **electrode** .

Pref. the second **electrode** is formed on the electrolytic separator by screen printing. The encapsulating material is pref. also applied by screen printing over the stack.

The conductive ionic **polymer** is pref. of linear **polymers** and crosslinkable **polymers** e.g. in EP-424827, and esp. a polyether oxide. The ionic salt is used e.g. in an amt. of 0.1-2 moles per litre of **polymer** . The solvent is of e.g. propylene or butylene carbonate, terpineol, glycol derivs. and mixts. of these. (I) for a super condenser is e.g. carbonaceous material with a high specific surface, metalic oxides and electroconductive **polymers** . (I) for the **cathode** of an electrochemical generator with a carbon or Li **anode** is of e.g. metallic oxides, selenides, (phospho) sulphides or oxyhalides or electroconductive **polymers** . (II) is of e.g. metallic and carbonaceous materials.

USE/ADVANTAGE - The electrochemical generators and supercondensers may be fabricated in situ by screen printing onto flexible or rigid substrates e.g. electronic circuit boards. Use of screen printing allows the devices to be made very thin (e.g. with layer thicknesses of less than 10 microns) and with any pref. shape, and is very useful for automated prodn. techniques.

Dwg.2/3

Title Terms: ELECTROCHEMICAL; GENERATOR; SUPER; CONDENSER; PRODUCE; CONDUCTING; ION; INK; SCREEN; PRINT; CURRENT; COLLECT; **ELECTRODE** ; ELECTROLYTIC; SEPARATE; ENCAPSULATE; LAYER; SITU; CIRCUIT; BOARD; ELECTRONIC; CONDUCTING; MATERIAL
Derwent Class: A85; G02; L03; P74; V01; X16
International Patent Class (Main): **H01M-006/40**
International Patent Class (Additional): B41F-015/00; H01G-009/24; **H01M-004/60** ; **H01M-006/18**

File Segment: CPI; EPI; EngPI
Manual Codes (CPI/A-N): A12-E06; A12-E06B; G02-A05B; L03-A01C; L03-A02D
Manual Codes (EPI/S-X): V01-B01G1; V01-B01G5; V01-B01G8A; V01-B01G8D; V01-B01G8E; X16-L02
Plasdoc Codes (KS): 0013 0231 1279 1588 1594 2020 2211 2319 2551 2740 3276 3277
Polymer Fragment Codes (PF):
001 017 028 04- 147 198 231 308 336 342 473 506 509 55& 56& 623 627 628 688 720 725
Polymer Indexing (PS):
<01>
001 017; R00351 G1558 D01 D23 D22 D31 D42 D50 D82 F47; H0000; P0964-R F34; P0975 P0964 F34
002 017; ND01; K9621-R; B9999 B3269 B3190; B9999 B4988-R B4977 B4740; Q9999 Q7396 Q7330; Q9999 Q7363 Q7330; Q9999 Q7454 Q7330
003 017; A999 A135

32/9/15 (Item 11 from file: 350)
DIALOG(R)File 350:Derwent WPIX

009204548 **Image available**
WPI Acc No: 1992-331980/199240
XRAM Acc No: C92-147632
XRPX Acc No: N92-253556
Integral solid state embedded power supply - comprises current collectors inlaid in a substrate and coupled to electrodes
Patent Assignee: MOTOROLA INC (MOTI)
Inventor: MORE G
Number of Countries: 002 Number of Patents: 005
Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week	
WO 9216025	A1	19920917	WO 92US909	A	19920206	199240	B
US 5180645	A	19930119	US 91662598	A	19910301	199306	
EP 573595	A1	19931215	EP 92908317	A	19920206	199350	
			WO 92US909	A	19920206		
JP 6505592	W	19940623	JP 92508133	A	19920206	199429	
			WO 92US909	A	19920206		
EP 573595	A4	19951129	EP 92908317	A	19920000	199627	

Priority Applications (No Type Date): US 91662598 A 19910301
Cited Patents: US 2523354; US 4822701; US 5019467; US 5019468; 6.Jnl.Ref; EP 350235; JP 2086055; JP 2089696; JP 2100268; JP 55104071; JP 58053162; JP 60012679
Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
WO 9216025	A1	E	15	H01M-002/22	
US 5180645	A		7	H01M-002/22	
EP 573595	A1	E		H01M-002/22	Based on patent WO 9216025
JP 6505592	W		5	H01M-002/22	Based on patent WO 9216025
EP 573595	A4			H01M-002/22	

Abstract (Basic): WO 9216025 A
Battery integrally formed in a substrate (2) comprises first **current collector** (4) **embedded** in the substrate and coupled to a first **electrode** (14); **second current collector** (6) coupled to a second **electrode** (16); and a solid **electrolyte** (8) between first and second **electrodes** . The substrate is pref. a flexible circuit carrying substrate or a portion of a housing.
Specifically collectors are expanded metal, screens or foils of Ni, Cu, Al and/or Cr. First **electrode** comprises Li (alloy), lithiated C cpds. or an Li-doped **polymer** selected from polyphenylene, polypyrrole and polyaniline and their derivs.. The second **electrode** is TiS2, VOx, a doped Li **polymer** or a redox **polymer** .
The solid **electrolyte** is a conductive **polymer** selected from poly-ethylene oxide, poly-phosphazene and poly-propylene oxide.
USE/ADVANTAGE - In portable equipment, esp. a radio (claimed)

Integrated battery results in smaller overall size, lighter overall wt. and lower mfg. cost of the equipment.

Dwg.1/4

Abstract (Equivalent): US 5180645 A

A battery integrally formed in a substrate comprises (a) a first current collector (pref. expanded metal, metal screens and metal foils) embedded in the substrate (pref. a portion of housing) and further coupled to a first **electrode** (pref. comprising lithium alloys); (b) a **second current collector** coupled to a second **electrode** (pref. comprises metal chalcogenides); and (c) a solid state **electrolyte** between the first **electrode** and the second **electrode** . (c) is pref. comprised of conductive **polymer** materials such as polyethyleneoxide.

USE/ADVANTAGE - The integral battery built into or as part of an equipment housing results in smaller overall size, lighter overall wt. and lower fabrication cost of the portable equipment.

(Dwg.1/4

Title Terms: INTEGRAL; SOLID; STATE; EMBED; POWER; SUPPLY; COMPRISE; CURRENT; COLLECT; INLAY; SUBSTRATE; COUPLE; **ELECTRODE**

Derwent Class: L03; W01; W02; X16

International Patent Class (Main): H01M-002/22

International Patent Class (Additional): H01M-002/10

File Segment: CPI; EPI

Manual Codes (CPI/A-N): L03-E01D

Manual Codes (EPI/S-X): W01-C01D3A; W01-C01D3C; W01-C01E5B; W02-G02A1; X16-F03A

32/9/16 (Item 12 from file: 350)

DIALOG(R)File 350:Derwent WPIX

008612972 **Image available**

WPI Acc No: 1991-117002/199116

Related WPI Acc No: 1989-078670

XRAM Acc No: C91-050339

XRPX Acc No: N91-090099

Battery with a three-layer tablet structure - is easy to mfr. and has low resistance and good charging discharging properties

Patent Assignee: SHARP KK (SHAF)

Inventor: YONEDA T

Number of Countries: 001 Number of Patents: 001

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week	
US 5004657	A	19910402	US 89449450	A	19891212	199116	B

Priority Applications (No Type Date): JP 87225997 A 19870909

Abstract (Basic): US 5004657 A

A simply mfd. battery comprises a cell tablet having, sequentially, positive **electrode** (5), **electrolyte** (6) and negative **electrode** (7) powder compsns., is **sandwiched between two current - collector** plates (9) and has electron conductors (4) on or in the **electrode** powder compsns. The cell is pressurised to form a four- or five-layered tablet and to reduce internal resistance. The **electrode** powders comprise a positive or negative active material, electroconductive material, binding agent and solid **electrolyte** .

The positive active material is MnO2 or NiO2, the negative is TiNi, TiNiB0.01, TiNiMn0.01, LaNi5 or TiFe, the electroconductive material is acetylene black, there is 3-20 wt.% of binder, the solid **electrolyte** is SnO2.3H2O or Sb2O5.3-6H2O at 10-60 wt.% in the **electrode** powders, and the electron conductors are metals, metal-coated materials, or electroconductive **polymers** or ceramics.

Also claimed is the battery above, specifying that the positive active material may also be of WO3, PbO2 or MoO3, the electroconductive material may be other carbon blacks or Ni powder, the binding agent may be carboxymethyl cellulose, PTFE, PVA, polythene, agar etc.

USE/ADVANTAGE - A battery of tablet structure which is quick and easy to mfr. is provided. The battery contents are formed into a tablet

beforehand and so may be produced independently on a large scale. The internal resistance is small and charging/discharging is good. (8pp Dwg.No.1/9

Title Terms: BATTERY; THREE; LAYER; TABLET; STRUCTURE; EASY; MANUFACTURE; LOW; RESISTANCE; CHARGE; DISCHARGE; PROPERTIES

Derwent Class: A85; L03; X16

International Patent Class (Additional): **H01M-004/52** ; **H01M-010/36**

File Segment: CPI; EPI

Manual Codes (CPI/A-N): A12-E06; L03-E03

Manual Codes (EPI/S-X): X16-B01; X16-E01; X16-J

Plasdoc Codes (KS): 0210 0231 0239 0947 3198 3202 1989 2007 2551 2739

Polymer Fragment Codes (PF):

001 014 04- 041 046 047 062 064 087 231 240 244 245 252 259 506 509 52& 56& 60- 623 627 688

Derwent Registry Numbers: 1522-U; 1533-U; 1924-U; 1925-U; 1936-U

?

File 348:EUROPEAN PATENTS 1978-2002/Oct W03
(c) 2002 European Patent Office
File 349:PCT FULLTEXT 1979-2002/UB=20021024,UT=20021017
(c) 2002 WIPO/Univentio

Set	Items	Description
S1	60427	ELECTRODE# OR MICROELECTRODE# OR ELECTROLYTE# OR ANOD?? ? - OR CATHOD?? ? OR KATHOD?? ? OR POSODE?? ? OR KATOD?? ? OR NEG-OD?? ?
S2	8247	CURRENT(2N)COLLECT???? ?
S3	407	(PLURALITY OR MANY OR MULTI OR SEVERAL OR TWO OR NUMBER OR NUMEROUS OR MULTIPLE OR MULTITUD? OR PLURIF? OR SECOND OR MOR-E)(1W)S2
S4	2	MULTILAYER?(1W)S2
S5	536	S2(3N)(SPACE? ? OR SPACING? OR INTERSPAC???? ? OR INTERSTI-C? OR SEPARAT???? ? OR SEP? ? OR CLEARANCE? OR INTERVAL? ?)
S6	616	S2(3N)(LAYER? ? OR STRATA? ? OR STRATUM? ? OR INTERLAY? OR INTERLAID?)
S7	970	S2(3N)(INSERT? OR INTERPOS? OR INSINUAT? OR BETWEEN OR SAN-DWICH? OR EMBED? OR BETWIXT OR INTRODUC? OR INTERVEN? OR INTE-RLARD? OR INTERJECT?)
S8	139493	ELECTRODE? ? OR MICROELECTRODE? ? OR ELECTROLYTE? ?
S9	226	S3:S4(S)S5:S8
S10	200	S9(S)(S1 OR S8)
S11	300425	POLYMER? ? OR HOMOPOLYMER? ? OR COPOLYMER? ? OR TERPOLYMER? ?
S12	48131	S11(6N)(HEAT? OR HOT? ? OR MELT??? ? OR WARM?? ? OR WARMING OR CALEFACT? OR TORREFACT? OR PYROL? OR PYROG? OR SINTER? OR THERMOL? OR THERMAL?)
S13	4679	S11(6N)(TEPEFACT? OR PREHEAT? OR FUSE? ? OR FUSING OR FUSI-ON)
S14	12641	S11(6N)(HIGH OR HIGHER OR RAIS? OR HEIGHTEN)(2N)(TEMP? ? OR TEMPERATURE? OR THERMAL?)
S15	114	S3:S4(S)S5:S7
S16	86	S15(S)(S1 OR S8)
S17	1	S16(S)S12:S14
S18	15	S16(S)S11
S19	1	S15(S)S12:S14
S20	4629	IC='H01M-004'
S21	4127	IC='H01M-010'
S22	9	S20:S21 AND S15(S)S11
S23	15	S17:S19 OR S22

?t23/5,k/all

23/5,K/1 (Item 1 from file: 348)
DIALOG(R)File 348:EUROPEAN PATENTS

01394355
Secondary cell and method for preparation thereof
Sekundare Zelle und Herstellungsverfahren
Pile secondaire et sa methode de fabrication
PATENT ASSIGNEE:
SONY CORPORATION, (214024), 7-35, Kitashinagawa 6-chome Shinagawa-ku, Tokyo, (JP), (Applicant designated States: all)
INVENTOR:
Endo, Takahiro, c/o Sony Corporation, 7-35, Kitashinagawa 6-chome, Shinagawa-ku, Tokyo, (JP)
Kezuka, Koichiro, c/o Sony Corporation, 7-35, Kitashinagawa 6-chome, Shinagawa-ku, Tokyo, (JP)
Hatazawa, Tsuyonobu, c/o Sony Corporation, 7-35, Kitashinagawa 6-chome, Shinagawa-ku, Tokyo, (JP)
LEGAL REPRESENTATIVE:
Muller . Hoffmann & Partner Patentanwalte (101521), Innere Wiener Strasse 17, 81667 Munchen, (DE)
PATENT (CC, No, Kind, Date): EP 1180806 A2 020220 (Basic)
APPLICATION (CC, No, Date): EP 2001119841 010816;
PRIORITY (CC, No, Date): JP 2000248675 000818

DESIGNATED STATES: AT; BE; CH; CY; DE; DK; ES; FI; FR; GB; GR; IE; IT; LI; LU; MC; NL; PT; SE; TR
EXTENDED DESIGNATED STATES: AL; LT; LV; MK; RO; SI
INTERNATIONAL PATENT CLASS: H01M-002/02; **H01M-010/40 ; H01M-010/34**

ABSTRACT EP 1180806 A2
A secondary cell exhibiting superior flexibility and cell characteristics. This secondary cell has an anode, a polymer electrolyte layer and an anode, layered together. At least one of the anode and the anode is formed by a sheet-like electrode comprised of a current collector, composed mainly of carbon fibers, and an electrode mixture carried thereon. A metal foil is provided in sliding contact with the sheet electrode on the opposite side of the sheet electrode with respect to the polymer electrolyte layer, and an electrode terminal is taken from said metal foil. The cell device is sealed under a reduced pressure by an exterior member.
ABSTRACT WORD COUNT: 106
NOTE:
Figure number on first page: 1

LEGAL STATUS (Type, Pub Date, Kind, Text):
Application: 020220 A2 Published application without search report
LANGUAGE (Publication,Procedural,Application): English; English; English
FULLTEXT AVAILABILITY:

Available Text	Language	Update	Word Count
CLAIMS A	(English)	200208	455
SPEC A	(English)	200208	7234
Total word count - document A			7689
Total word count - document B			0
Total word count - documents A + B			7689

...INTERNATIONAL PATENT CLASS: **H01M-010/40** ...

... **H01M-010/34**

...SPECIFICATION first current collector, a polymer electrolyte layer, and a second electrode, made up of a **second current collector** , carrying a **layer** of an active material thereon, with the metal foil being in sliding contact with the first **electrode** , to form a cell device, and sealing the cell device under a reduced pressure with...first current collector, a polymer electrolyte layer, and a second electrode, made up of a **second current collector** , carrying a **layer** of an active material thereon, with the metal foil being in sliding contact with the first **electrode** , to form a cell device, and sealing the cell device under a reduced pressure with...

...CLAIMS current collector, composed mainly of carbon fibers, and an electrode mixture, carried by the first **current collector** , a **polymer electrolyte layer** , and a second **electrode** , made up of a **second current collector** , carrying a **layer** of an active material thereon, with the metal foil being in sliding contact with the first **electrode** , to form a cell device; and
sealing the cell device under a reduced pressure with...

23/5,K/2 (Item 1 from file: 349)
DIALOG(R)File 349:PCT FULLTEXT

00909122 **Image available**
RETICULATED AND CONTROLLED POROSITY BATTERY STRUCTURES
STRUCTURES DE BATTERIE RETICULEES ET A POROSITE REGULEE
Patent Applicant/Assignee:
MASSACHUSETTS INSTITUTE OF TECHNOLOGY, 77 Massachusetts Avenue, Cambridge, MA 02139, US, US (Residence), US (Nationality)
Inventor(s):
CHIANG Yet-Ming, 52 Lake Road, Framingham, MA 01701, US,
HELLWEG Benjamin, 57 Overhill Road, Orinda, CA 94563, US,

Legal Representative:
OYER Timothy J (agent), Wolf, Greenfield & Sacks, P.C., 600 Atlantic Avenue, Boston, MA 02210, US,
Patent and Priority Information (Country, Number, Date):
Patent: WO 200243168 A2 20020530 (WO 0243168)
Application: WO 2001US48345 20011022 (PCT/WO US0148345)
Priority Application: US 2000242124 20001020
Designated States: AE AG AL AM AT AU AZ BA BB BG BR BY BZ CA CH CN CO CR CU CZ DE DK DM DZ EC EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MA MD MG MK MN MW MX MZ NO NZ PH PL PT RO RU SD SE SG SI SK SL TJ TM TR TT TZ UA UG UZ VN YU ZA ZW
(EP) AT BE CH CY DE DK ES FI FR GB GR IE IT LU MC NL PT SE TR
(OA) BF BJ CF CG CI CM GA GN GQ GW ML MR NE SN TD TG
(AP) GH GM KE LS MW MZ SD SL SZ TZ UG ZW
(EA) AM AZ BY KG KZ MD RU TJ TM
Main International Patent Class: **H01M-004/00**
Publication Language: English
Filing Language: English
Fulltext Availability:
Detailed Description
Claims
Fulltext Word Count: 9483

English Abstract
The effective ionic conductivity in a composite structure is believed to decrease rapidly with volume fraction. A system, such as a bipolar device or energy storage device, has structures or components in which the diffusion length or path that electrodes or ions must traverse is minimized and the interfacial area exposed to the ions or electrons is maximized. The device includes components that can be reticulated or has a reticulated interface so that an interface area can be increased. The increased interfacial perimeter increases the available sites for reaction of ionic species. Many different reticulation patterns can be used. The aspect ratio of the reticulated features can be varied. Such bipolar devices can be fabricated by a variety of methods or procedures. A bipolar device having structures of reticulated interface can be tailored for the purposes of controlling and optimizing charge and discharge kinetics. A bipolar device having graded porosity structures can have improved transport properties because the diffusion controlling reaction kinetics can be modified. Graded porosity electrodes can be linearly or nonlinearly graded. A bipolar device having perforated structures also provides improved transport properties by removing tortuosity and reducing diffusion distance.

French Abstract
On pense que la conductivite ionique effective d'une structure composite decroit rapidement avec une fraction de volume. L'invention concerne un systeme, tel qu'un dispositif bipolaire ou un dispositif de stockage d'energie, comprenant des structures ou des composants dans lesquels la longueur ou le chemin de diffusion traverse par des electrodes ou des ions est minimisee, et la zone interfaciale exposee aux ions ou aux electrons est maximisee. L'invention concerne egalement un dispositif comprenant des composants qui peuvent etre reticules ou posseder une interface reticulee de telle sorte qu'il est possible d'augmenter une zone interfaciale. L'augmentation du perimetre interfacial permet d'augmenter les sites disponibles pour des reactions d'especes ioniques. On peut utiliser differents modeles de reticulation. Le rapport d'aspect des caracteristiques reticulees peut varier. Les dispositifs bipolaires peuvent etre fabriques a l'aide d'une variete de procedes ou de procedures. Un dispositif bipolaire dote de structures interfaciales reticulees peut etre personnalise a des fins de regulation et d'optimisation de charge et de cinetique de decharge. Ce dispositif bipolaire dote de structures a porosite progressive peut presenter des proprietes de transport ameliorees du fait que la cinetique de reaction regulant la diffusion peut etre modifiee. Les electrodes a porosite progressive peuvent varier progressivement lineairement ou non lineairement. Un dispositif bipolaire a structures perforees peut egalement presenter des proprietes de transport ameliorees par

suppression de la tortuosite et reduction de la distance de diffusion.

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Examination 20021017 Request for preliminary examination prior to end of 19th month from priority date

Main International Patent Class: **H01M-004/00**
Fulltext Availability:
Claims

Claim
... second electrode, a first current collector in electronic communication with the first electrode and a **second current collector** in electronic 1 5 communication with the second **electrode** , wherein the first **electrode** includes a portion, positioned **between** the first **current collector** and the second **electrode** , having a porosity that increases in a direction from the first current collector toward the second **electrode** .

23/5,K/3 (Item 2 from file: 349)
DIALOG(R)File 349:PCT FULLTEXT

00806420
MULTI-LAYER ELECTROCHEMICAL CELL DEVICES
DISPOSITIFS DE PILE ELECTROCHIMIQUE MULTICOUCHE
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Inventor(s):
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HEY David A (et al) (agent), International Coordinator, Telcordia Technologies, Inc., 445 South Street, Room 1G112R, Morristown, NJ 07960-6438, US,
Patent and Priority Information (Country, Number, Date):
Patent: WO 200139296 A1 20010531 (WO 0139296)
Application: WO 2000US25511 20000915 (PCT/WO US0025511)
Priority Application: US 99447639 19991123
Designated States: AU CA CN IL IN JP KR MX SG ZA
(EP) AT BE CH CY DE DK ES FI FR GB GR IE IT LU MC NL PT SE
Main International Patent Class: H01M-002/16
Publication Language: English
Filing Language: English
Fulltext Availability:
Detailed Description
Claims
Fulltext Word Count: 6012

English Abstract
A laminated multi-layer electrochemical cell device structure comprising positive and negative electrode layer members of polymeric matrix composition having a microporous polyolefin membrane separator member interposed therebetween wherein the separator membrane includes a polymer coating layer. The separator is further treated to provide a deposited coating of a primary plasticizer for the polymer coating layer. The device electrode and separator members are then assembled and laminated at a compressive force and temperature at which the plasticizer film softens the polymer coating of the separator member sufficiently to establish a strong interfacial bond with the matrix polymers of the electrode members and thereby form a laminated unitary cell structure. In another embodiment, the primary plasticizer comprises a component of the electrode polymeric matrix compositions. In either embodiment, the plasticizer subsequently volatilizes from the structure to further strengthen the interfacial bond, yet its temporary presence in the

interfacial region of the multi-layer cell structure enables lamination of the cell members at a temperature below the pore-collapse temperature of the separator membrane, thereby preserving the thermal shut-down protection feature of the microporous separator.

French Abstract
L'invention concerne une structure de dispositif de pile electrochimique multicouche stratifiee comprenant des elements de couches d'electrodes positive et negative constitues d'une composition matricielle polymere entre lesquels est interpose un element separateur a membrane en polyolefine microporeuse, la membrane du separateur comprenant une couche de revetement polymere. Le separateur est egalement traite pour produire un revetement depose d'un plastifiant primaire pour la couche de revetement polymere. Les elements d'electrodes et de separateur du dispositif sont ensuite assembles et stratifies sous une force de compression et une temperature auxquelles la couche mince de plastifiant assouplit le revetement polymere de l'element separateur suffisamment pour etablir une liaison interfaciale forte avec les polymeres matriciels des elements d'electrode et former ainsi une structure de pile unitaire stratifiee. Dans un autre mode de realisation, le plastifiant primaire comprend un constituant des compositions matricielles polymeres d'electrode. Dans l'un ou l'autre mode de realisation, le plastifiant s'evapore ensuite de la structure pour renforcer davantage la liaison interfaciale, cependant sa presence temporaire dans la region interfaciale de la structure de pile multicouche permet une stratification des elements de la pile a une temperature inferieure a la temperature d'ecrasement des pores de la membrane du separateur, preservant ainsi la fonction de protection d'arret thermique du separateur microporeux.

Legal Status (Type, Date, Text)
Publication 20010531 A1 With international search report.
Examination 20010823 Request for preliminary examination prior to end of 19th month from priority date

Fulltext Availability:
Claims

Claim
... conductive additive; and
a second current collector; and
a microporous separator interposed between said first **electrode** structure and said second **electrode** structure, said separator having a **polymer**
In
coating layer, said **polymer** coating layer being compatible with said polymeric binder material of said first **electrode** structure and said second
electrode structure;
wherein prior to and during bonding, a primary plasticizer of said **polymer** coating layer of said separator is present at at least the interfacial bondincr surfaces between said first **electrode** structure and said separator and between said second **electrode** structure and said separator, said plasticizer facilitating bonding of said separator to said first **electrode** structure and said second **electrode** structure.

2 A device according to claim 1, wherein, said device is a rechargeable lithium...

23/5,K/4 (Item 3 from file: 349)
DIALOG(R)File 349:PCT FULLTEXT

00805678 **Image available**
METHODS OF PREPARING ELECTROCHEMICAL CELLS
PROCEDES DE PRODUCTION DE CELLULES ELECTROCHIMIQUES
Patent Applicant/Assignee:

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Patent Applicant/Inventor:
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Legal Representative:
NICOL Jacqueline M (agent), Moltech Corporation, Intellectual Property Department, 9062 South Rita Road, Tucson, AZ 85747-9108, US,
Patent and Priority Information (Country, Number, Date):
Patent: WO 200139301 A2-A3 20010531 (WO 0139301)
Application: WO 2000US32140 20001121 (PCT/WO US0032140)
Priority Application: US 99167149 19991123
Designated States: AE AG AL AM AT AU AZ BA BB BG BR BY BZ CA CH CN CR CU CZ DE DK DM DZ EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MA MD MG MK MN MW MX MZ NO NZ PL PT RO RU SD SE SG SI SK SL TJ TM TR TT TZ UA UG US UZ VN YU ZA ZW
(EP) AT BE CH CY DE DK ES FI FR GB GR IE IT LU MC NL PT SE TR
(OA) BF BJ CF CG CI CM GA GN GW ML MR NE SN TD TG
(AP) GH GM KE LS MW MZ SD SL SZ TZ UG ZW
(EA) AM AZ BY KG KZ MD RU TJ TM
Main International Patent Class: H01M-002/16
International Patent Class: **H01M-010/40**
Publication Language: English
Filing Language: English
Fulltext Availability:
Detailed Description
Claims
Fulltext Word Count: 32338

English Abstract
Methods of preparing and anode/separator assembly for use in electrochemical cells in which a microporous separator layer, such as a microporous xerogel layer, is coated on a temporary carrier substrate, and an anode active layer, such as lithium metal, is then deposited on the separator layer, prior to removing the temporary carrier substrate from the separator layer. One or more protective coating layers may be coated before or after the coating step of the microporous separator layer and prior to depositing the anode active layer. Additional layers, including an edge insulating layer, an anode current collector layer, an electrode insulating layer, and a cathode current collector layer, may be applied subsequent to the coating step of the microporous separator layer. Also, methods of preparing electrochemical cells utilizing anode/separator assemblies prepared by such methods, and anode/separator assemblies and electrochemical cells prepared by such methods.

French Abstract
Cette invention a trait a des procedes de production d'un ensemble anode/separateur, utilisable dans des cellules electrochimiques dans lesquelles une couche de separation microporeuse, une couche microporeuse a base de xerogel notamment, recouvre un substrat de support provisoire, une couche active anodique, notamment au lithium, etant ensuite deposee sur la couche de separation avant que ne soit retire de cette couche de separation le substrat de support provisoire. Il est possible de deposer une ou plusieurs couches d'enduction avant ou apres l'operation d'enduction de la couche microporeuse de separation et avant la mise en place de la couche active anodique. Il est egalement possible, apres l'operation d'enduction de la couche microporeuse de separation, de deposer des couches supplementaires, notamment une couche marginale isolante, une couche collectrice de courant anodique, une couche isolante d'electrode et une couche collectrice de courant cathodique. L'invention, qui concerne egalement des procedes de production de cellules electrochimiques utilisant des ensembles anode/separateur fabriquees grace aux methodes susmentionnees, porte, en outre, sur des cellules electrochimiques produites grace a ces procedes.

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International Patent Class: **H01M-010/40**
Fulltext Availability:
Claims

Claim
... layer and said electrode insulating layer. 105. The method according to claim 103, wherein a **second** anode **current collector layer** is deposited in a third desired coating pattern on said second surface of said anode...'

...said second surface of said edge insulating layer of said anode/separator assembly; wherein said **second** anode **current collector layer** has a first surface in contact with said second surface of said anode active layer...

...surface on the side opposite from said anode active layer; and wherein said first anode **current collector layer** and said second surface of said second anode 1 5 **current collector layer** are positioned in a face-to-face relationship in step (a). 106. The method according...prior to completion of step (b). 107. The method according to claim 106, wherein a **second** anode **current collector layer** is deposited in a third desired coating pattern on said second surface of said anode...

...said second surface of said edge insulating layer of said anode/separator assembly; wherein said **second** anode **current collector layer** has a first surface in contact with said second surface of said anode active layer...

...surface on the side opposite from said anode active layer; and wherein said first anode **current collector layer** and said second surface of said **second** anode **current collector layer** are positioned in a face-to-face relationship in step (a). 108. The method according...

...positioned in a face-to-face relationship in step (a); and wherein a first anode **current collector layer** -electrode insulating **layer** -cathode-anode/separator assembly multilayer cell stack is formed in step (b), wherein said cathode...

...second surface of said separator layer. 109. The method according to claim 103, wherein a **second** anode **current collector layer** is deposited in a third desired coating pattern on said second surface of said anode...

...to completion of step (b). 111. The method according to claim I IO, wherein a **second** anode **current collector layer** is deposited in a third desired coating pattern on said second surface of said anode...

...layer and has a second surface on the side opposite from said first protective coating **layer** ; an anode **current collector layer** in a third desired coating pattern on said second surface of said anode active layer and on said second surface of said edge insulating **layer** , wherein said anode **current collector layer** has a first surface in contact with said second surface of said anode active layer...

...insulating layer in a fourth desired coating pattern on said second surface of said anode **current collector layer** and on said second surface of said edge insulating layer, wherein said electrode insulating layer has a first surface in contact with said anode **current collector layer** and has a second surface on the side opposite from said anode **current collector layer** ;
wherein said cathode and said second surface of said electrode insulating layer
are positioned in...

...face-to-face relationship;

(b) winding said laminar combination to form a cathode-electrode insulating **layer - anode current collector layer - anode / separator** assembly multilayer cell stack, wherein said **cathode** is in contact with said second surface of said separator layer; (c) providing an **electrolyte** , wherein said **electrolyte** is contained in the pores of said separator layer of said multilayer cell stack; (d...

...and,
(e) sealing said casing. 117. The method according to claim II 6, wherein said **anode** /separator assembly of step I 0 (a) further comprises a temporary carrier substrate on said...
...completion of step (b). 118. The method according to claim 1 1 6, wherein said **cathode** and said second surface of said separator layer of said **anode** /separator assembly are positioned in a face-toface relationship in step (a). 119. The method...1 6 to 12 0, wherein said electrochemical cell is a primary cell. 123. An **anode** /separator assembly of an electrochemical cell prepared according to the method of claims 1, 18, 24, 26, 31, 33, 34, 37, and 39. 125. An **anode** /separator assembly of an electrochemical cell prepared according to the method of claims 2 to...

23/5,K/5 (Item 4 from file: 349)
DIALOG(R)File 349:PCT FULLTEXT

00805673 **Image available**
METHOD OF MAKING MULTI-LAYER ELECTROCHEMICAL CELL DEVICES
PROCEDE DE PRODUCTION DE DISPOSITIFS DE PILE ELECTROCHIMIQUE MULTICOUCHE
Patent Applicant/Assignee:
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Inventor(s):
GOZDZ Antoni S, 8 Wemrock Drive, Ocean, NJ 07712, US,
Legal Representative:
HEY David A (et al) (agent), Telcordia Technologies, Inc., c/o International Coordinator, 445 South Street, Rm. 1G112R, Morristown, NJ 07960-6438, US,
Patent and Priority Information (Country, Number, Date):
Patent: WO 200139295 A1 20010531 (WO 0139295)
Application: WO 2000US25486 20000915 (PCT/WO US0025486)
Priority Application: US 99447640 19991123
Designated States: AU CA CN IL IN JP KR MX SG ZA
(EP) AT BE CH CY DE DK ES FI FR GB GR IE IT LU MC NL PT SE
Main International Patent Class: H01M-002/16
International Patent Class: **H01M-010/50**
Publication Language: English
Filing Language: English
Fulltext Availability:
Detailed Description
Claims
Fulltext Word Count: 6838

English Abstract
A method of making a laminated multi-layer electrochemical cell device structure comprising positive and negative electrode layer members (12, 18) of a polymeric matrix composition, having a microporous polyolefin membrane separator member (16) therebetween, wherein the membrane includes a polymer coating layer. The separator is treated to provide a coating of a plasticizer for the polymer coating layer. The electrode and separator members are then assembled and laminated at a compressive force and temperature at which the pasticizer film softens the polymer coating of the separator member to sufficiently establish a strong interfacial bond with the matrix polymers of the electrode members, and thereby form a unitary cell structure. Alternatively, the plasticizer is a component of the electrode polymer matrix composition. In either embodiment, the plasticizer subsequently volatilizes from the structure to further

strengthen the interfacial bond.

French Abstract

L'invention concerne un procede de production d'une structure de dispositif de pile electrochimique multicouche stratifiee comprenant des elements de couches d'electrodes positive et negative (12, 18) d'une composition de matrice polymere, entre lesquels se trouve un element separateur (16) a membrane polyolefinique microporeuse, la membrane contenant une couche de revetement polymere. Le separateur est traite pour produire un revetement d'un plastifiant pour la couche de revetement polymere. Les elements d'electrodes et separateur sont ensuite assembles et stratifies sous une force de compression et une temperature auxquelles la couche mince de plastifiant assouplit le revetement polymere de l'element separateur pour etablir une liaison interfaciale forte suffisante avec les polymeres matriciels des elements d'electrode, et former ainsi une structure de pile unitaire. Dans un autre mode de realisation, le plastifiant est un constituant de la composition matricielle polymere d'electrode. Dans un autre mode de realisation, le plastifiant s'evapore ensuite a partir de la structure pour renforcer davantage la liaison interfaciale.

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Examination 20011018 Request for preliminary examination prior to end of 19th month from priority date

International Patent Class: **H01M-010/50**
Fulltext Availability:
Claims

Claim

... of makin a multi-layer electrochemical device comprising
9
the steps of:
providing a first **electrode** structure comprised of a first **electrode layer**
and a first **current collector** by the process of
mixing together a polymeric binder material, **electrode**
material, and an electronically conductive additive to make a
first **electrode** layer mixture;
forming said first **electrode** layer from said first mixture;
providing said first current collector; and
forining said first **electrode** structure from said first **electrode layer** and said first **current collector** ;
providing a second **electrode** structure comprised of a second **electrode layer** and a **second current collector** by the process of
mixing together a polymeric binder material, **electrode**
material, and an electronically conductive additive to make a
second **electrode** layer mixture;
forming said second **electrode** layer from said second mixture;
providing said **second current collector** ; and
forming said second **electrode** structure from said second **electrode layer** and said **second current collector** ;
providing a surface modified microporous separator having a **polymer**
coating layer, said **polymer** coating layer being compatible withsaid
polymeric binder material of said first **electrode** layer and said second **electrode** layer;
providing a plasticizer material which is a primary plasiticizer of said **polymer** coating layer of said separator so that said plasticizer is
available at at least the interfacial bonding surfaces between said first **electrode** structure and said separator and between second **electrode**
structure and said separator; and
21
bondiner said separator between said first **electrode** structure and said
In
second **electrode** structure.
2 A method according to claim 1, wherein said step of providing a
plasticizer...

23/5,K/6 (Item 5 from file: 349)
DIALOG(R)File 349:PCT FULLTEXT

00805671 **Image available**
METHODS OF PREPARING ELECTROCHEMICAL CELLS
PROCEDES DE PREPARATION DE CELLULES ELECTROCHIMIQUES
Patent Applicant/Assignee:
MOLTECH CORPORATION, 9062 South Rita Road, Tucson, AZ 85747-9108, US, US (Residence), US (Nationality), (For all designated states except: US)
Patent Applicant/Inventor:
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Legal Representative:
NICOL Jacqueline M (agent), Moltech Corporation, Intellectual Property Department, 9062 South Rita Road, Tucson, AZ 85747-9108, US,
Patent and Priority Information (Country, Number, Date):
Patent: WO 200139293 A2-A3 20010531 (WO 0139293)
Application: WO 2000US32231 20001121 (PCT/WO US0032231)
Priority Application: US 99167150 19991123
Designated States: AE AG AL AM AT AU AZ BA BB BG BR BY BZ CA CH CN CR CU CZ DE DK DM DZ EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MA MD MG MK MN MW MX MZ NO NZ PL PT RO RU SD SE SG SI SK SL TJ TM TR TT TZ UA UG US UZ VN YU ZA ZW
(EP) AT BE CH CY DE DK ES FI FR GB GR IE IT LU MC NL PT SE TR
(OA) BF BJ CF CG CI CM GA GN GW ML MR NE SN TD TG
(AP) GH GM KE LS MW MZ SD SL SZ TZ UG ZW
(EA) AM AZ BY KG KZ MD RU TJ TM
Main International Patent Class: H01M-002/16
International Patent Class: **H01M-010/40**
Publication Language: English
Filing Language: English
Fulltext Availability:
Detailed Description
Claims
Fulltext Word Count: 33096

English Abstract
Methods of preparing a cathode/separator assembly for use in electrochemical cells in which a protective coating layer, such as a single ion conducting layer, is coated on a temporary carrier substrate, a microporous separator layer is then coated on the protective coating layer, and a cathode active layer is then coated on the separator layer, prior to removing the temporary carrier substrate from the protective coating layer. Additional layers, including an edge insulating layer, a cathode current collector layer, an electrode insulating layer, an anode current collector layer, an anode layer such as a lithium metal layer, and an anode protective layer, such as a single ion conducting layer, may be applied subsequent to the coating step of the microporous separator layer. Also, methods of preparing electrochemical cells utilizing cathode/separator assemblies prepared by such methods, and cathode/separator assemblies and electrochemical cells prepared by such methods.

French Abstract
L'invention concerne des procedes de preparation d'un ensemble cathode/separateur s'utilisant dans des cellules electrochimiques, selon lesquels une couche de revetement protectrice, telle qu'une couche conductrice a ion unique, revetant un substrat support temporaire est elle-meme revetue d'une couche de separation microporeuse, une couche cathodique etant deposee sur la couche de separation avant l'elimination du substrat temporaire depuis la couche de revetement protectrice. On peut appliquer des couches supplementaires, telles qu'une couche d'isolation des bords, une couche collecteur cathodique de courant, une couche d'isolation d'electrode, une couche collecteur anodique de courant, une couche anodique telle qu'une couche metallique en lithium, et une couche de protection anodique, telle qu'une couche conductrice a

ion unique, a la suite de l'etape de revetement de la couche de separation microporeuse. L'invention concerne egalement des procedes de fabrication de cellules electrochimiques utilisant les ensembles cathode/separateur obtenus selon lesdits procedes, ainsi que des ensembles cathode/separateur et des cellules electrochimiques obtenus par ces procedes.

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Examination 20010920 Request for preliminary examination prior to end of 19th month from priority date
Search Rpt 20020117 Late publication of international search report
Republication 20020117 A3 With international search report.

International Patent Class: **H01M-010/40**
Fulltext Availability:
Claims

Claim
... said electrode insulating layer. 106. The method according to claim 104 or 105, wherein a **second** cathode **current collector layer** is deposited in a third desired coating pattern on said second surface of said cathode...
...said second surface of said edge insulating layer of said cathode/separator assembly; wherein said **second** cathode **current collector layer** has a first surface in contact with said second surface of said cathode active layer...

...surface on the side opposite from said cathode active layer; and wherein said first cathode **current collector layer** and said second surface of said **second** cathode **current collector layer** are positioned in a face-to-face relationship in step (a). 107. The method according...

...positioned in a face-to-face relationship in step (a); and wherein a first cathode **current collector layer** -electrode insulating **layer** -anodecathode/separator assembly multilayer cell stack is formed in step (b), wherein said anode is...of said separator layer and has a second surface on the side opposite from said **separator layer** ; a cathode **current collector layer** in a third desired coating pattern on said second surface of said cathode active layer and on said second surface of said edge insulating **layer** , wherein said cathode **current collector layer** has a first surface in contact with said second surface of said cathode active layer...

...insulating layer in a fourth desired coating pattern on said second surface of said cathode **current collector layer** and on said second surface of said edge insulating layer, wherein said electrode insulating layer has a first surface in contact with said cathode **current collector layer** and has a second surface on the side opposite from said cathode **current collector layer** ; wherein said anode and said second surface of said electrode insulating layer
are positioned in...

...face-to-face relationship;
(b) winding said laminar combination to form an anode-electrode insulating **layer - cathode current collector layer - cathode / separator** assembly multilayer cell stack, wherein said **anode** is in contact with said first surface of said first protective coating layer;
(c) providing an **electrolyte** , wherein said **electrolyte** is contained in the pores of
said separator layer of said multilayer cell stack;
(d...

...and,
(e) sealing said casing. 114. The method according to claim II 3, wherein

said **cathode** /separator assembly of step (a) further comprises a temporary carrier substrate on said first surface...

...to completion of step (b). 115. The method according to claim II 3, wherein said **anode** and said first surface of said first protective coating layer of said **cathode** /separator assembly are positioned in a face-to-face relationship in step (a). 116. The...

...3 to I 1 7, wherein said electrochemical cell is a primary cell. 120. A **cathode** /separator assembly of an electrochemical cell prepared according to the method of claims I to...

23/5,K/7 (Item 6 from file: 349)
DIALOG(R)File 349:PCT FULLTEXT

00782046 **Image available**
IMPROVEMENTS TO CIRCUIT PROTECTION DEVICES
AMELIORATIONS DE DISPOSITIFS DE PROTECTION DE CIRCUITS
Patent Applicant/Assignee:
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Legal Representative:
GERSTNER Marguerite E (agent), Tyco Electronics Corporation, Intellectual Property Law Dept., 300 Constitution Drive, MS 106/1B, Menlo Park, CA 94025-1164, US,
Patent and Priority Information (Country, Number, Date):
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Application: WO 2000US22909 20000818 (PCT/WO US0022909)
Priority Application: US 99379684 19990824
Designated States: CN JP
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International Patent Class: H01C-001/14
Publication Language: English
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Fulltext Availability:
Detailed Description
Claims
Fulltext Word Count: 7667

English Abstract
A generally rectangular, planar electrical overcurrent sensing device (100) having a top major surface and a bottom major surface includes a patterned metal foil conductor (10) defined along the top major surface. The metal foil conductor has a first electrode region (12) at one end region, a second electrode region (14) at an opposite end region, and a current-concentrating region (16) extending between the first electrode portion and the second electrode portion. The device further includes a planar sheet of a composition (20) which exhibits PTC behaviour and which preferably comprises an organic polymer having a particulate conductive filler dispersed therewithin, the planar sheet having a first major surface in thermal contact with the bridging portion and having an opposite second major surface. A third patterned metal foil electrode (30) secured to the second major surface of the planar PTC sheet is sized and aligned with the current-concentrating region such that heat generated in the current-concentrating region from electical overcurrent flowing through the metal foil conductor is transferred to the planar sheet exhibiting PTC behavior and results in a control current flow to said third patterned metal foil electrode. An insulation layer (40) may be imposed between the patterned metal foil conductor and the PTC sheet layer, and in such case the third patterned metal foil electrode is divided into two conductive areas separated by a gap aligned with the

current-concentrating region, thereby providing a four terminal device. Tin pellets may be included in the current-concentrating region to reduce a melting/fracture temperature thereof below a flaming temperature of the organic polymer sheet forming the PTC layer.

French Abstract
L'invention concerne un detecteur de surintensites electriques (100) rectangulaire plat, presentant une grande face superieure et une grande face inferieure, la grande surface superieure etant pourvue d'une feuille metallique conductrice imprimee (10). Cette feuille metallique conductrice comprend une premiere zone electrode (12) a une extremite, une deuxieme zone electrode (14) a l'extremite opposee, et une zone de concentration de courant (16) entre la premiere et la deuxieme zone electrode. Le dispositif comprend egalement une feuille plane d'une composition (20) qui revele un comportement PTC et qui comprend de preference un polymere organique comportant en dispersion un agent de remplissage particulaire, la feuille plane definissant, d'une part une premiere grande face en contact thermique avec une partie en pont, et d'autre part une deuxieme grande face. Une feuille metallique imprimee (30) formant la troisieme electrode est fixee a la deuxieme grande face de la feuille plane PTC. De par ses dimensions et son alignement par rapport a la zone de concentration de courant, elle permet de transferer, a la feuille plane a comportement PTC, la chaleur se degageant de la zone de concentration de courant par suite de surintensite dans la feuille metallique conductrice. Il en resulte un courant de commande arrivant feuille metallique imprimee formant la troisieme electrode. Une couche isolante (40) peut etre placee entre la feuille metallique conductrice imprimee et la feuille PTC, et dans ce cas la feuille metallique imprimee formant la troisieme electrode est divisee en deux zones conductrices separees par un espace dans l'alignement de la zone de concentration de courant, ce qui permet la constitution d'un dispositif a quatre bornes. Des pastilles d'etain peuvent etre ajoutees dans la zone de concentration de courant afin de faire descendre la temperature de fusion/fracture en dessous de la temperature a partir de laquelle prend feu la feuille en polymere organique de la couche PTC.

Legal Status (Type, Date, Text)
Publication 20010301 A2 Without international search report and to be republished upon receipt of that report.
Examination 20010726 Request for preliminary examination prior to end of 19th month from priority date
Search Rpt 20011206 Late publication of international search report
Republication 20011206 A3 With international search report.

Fulltext Availability:
Detailed Description

Detailed Description
... electrical insulation layer 40 is interposed between the plane of the conductor IO and control **electrodes** 1 8 and 1 9, and the PTC layer 20. The insulation layer 40 is most preferably formed of a **high - temperatureresistant polymer** film, such as PVDF or one of the **high - temperature** -resistant derivatives of nylon (synthetic long-chain polymeric amides having recurring arnide groups). The layer...

...to withstand voltage spikes associated with transients in the operating environment. In automotive applications, the **polymer** film layer may preferably be on the order of at least approximately 0. 00 I...
...voltage spikes on the order of I 00 volts peak. In contrast to the single **current - collecting** control **layer** 32 shown in the Figure I device I 00, the device 200 of Figure 2 has **two current - collecting** control segments 32 and 33 which are separated by a narrow gap 34 most preferably...

...segments 32 and 33. At least one via 22 connects the segment 32 to the **electrode** 18, and at least one via 23 connects the segment 33 to the **electrode** 19.

Figure 4 depicts a protection circuit 400 incorporating a device 200 of

the present...

23/5,K/8 (Item 7 from file: 349)
DIALOG(R)File 349:PCT FULLTEXT

00739399 **Image available**
PORTABLE POWER SUPPLY
DISPOSITIF PORTATIF D'ALIMENTATION EN ENERGIE
Patent Applicant/Assignee:
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Inventor(s):
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Legal Representative:
DORINSKI Dale W, Motorola Inc., Intellectual Property Dept., 8000 West Sunrise Boulevard, Fort Lauderdale, FL 33322, US
Patent and Priority Information (Country, Number, Date):
Patent: WO 200052779 A1 20000908 (WO 0052779)
Application: WO 2000US5148 20000229 (PCT/WO US0005148)
Priority Application: US 99260097 19990301
Designated States: AL AM AT AU AZ BA BB BG BR BY CA CH CN CU CZ DE DK EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MD MG MK MN MW MX NO NZ PL PT RO RU SD SE SG SI SK SL TJ TM TR TT UA UG UZ VN YU ZA ZW
(EP) AT BE CH CY DE DK ES FI FR GB GR IE IT LU MC NL PT SE
(OA) BF BJ CF CG CI CM GA GN GW ML MR NE SN TD TG
(AP) GH GM KE LS MW SD SL SZ TZ UG ZW
(EA) AM AZ BY KG KZ MD RU TJ TM
Main International Patent Class: H01M-008/10
Publication Language: English
Filing Language: English
Fulltext Availability:
Detailed Description
Claims
Fulltext Word Count: 4381

English Abstract
The invention provides a device for generating energy, utilizing a fuel cell. Air is freely guided to the fuel cell, while a fuel gas is provided to the fuel cell from a pressurized fuel supply via a regulator. The portable power supply (100) is most applicable to use with handheld electric devices, and contains a fuel storage means (110) for storing a supply of fuel, a fuel delivery means (120) connected to the fuel storage means (110), an energy conversion device (140) connected to the fuel delivery means (120) for converting the fuel to electricity. The fuel storage means (110), the fuel delivery means (120), and the energy conversion device (140) are all contained in a volume less than 500 cubic centimeters.

French Abstract
L'invention concerne un dispositif de production d'energie au moyen d'une pile a combustible. De l'air est admis librement dans la pile a combustible, tandis qu'un gaz combustible est fourni a cette pile, a partir d'une alimentation en combustible sous pression, via un regulateur. Ce dispositif portatif d'alimentation en energie (100) est surtout destine a une utilisation avec des dispositifs electriques portatifs, et contient des moyens de stockage (110) de combustible, destines a stocker une source de combustible, des moyens d'apport (120) de combustible, relies aux moyens de stockage (110), un dispositif de

conversion d'energie (140), relie aux moyens d'apport (120) de combustible, et destines a convertir le combustible en electricite. Les moyens de stockage (110), les moyens d'apport (120) et le dispositif de conversion d'energie (140) sont tous contenus dans un volume inferieur a 500 centimetres cubes.

Legal Status (Type, Date, Text)
Publication 20000908 A1 With international search report.
Examination 20001109 Request for preliminary examination prior to end of 19th month from priority date

Fulltext Availability:
Detailed Description

Detailed Description
... stacked fuel cells..

I 0 A planar fuel cell is created by sandwiching a membrane **electrode** assembly (MEA) **between two current collector** assemblies. The MEA is a single sheet of a **polymer electrolyte** membrane (PEM) with an array of **cathodes**] 42 on one side and an array of corresponding **anodes** 1 44 on the other side.

Current collectors are supported by a plastic frame 1...

23/5,K/9 (Item 8 from file: 349)
DIALOG(R)File 349:PCT FULLTEXT

00563607 **Image available**
PLANAR FUEL CELL
PILE A COMBUSTIBLE PLANE
Patent Applicant/Assignee:
MOTOROLA INC,
Inventor(s):
PRATT Steven D,
KELLEY Ronald J,
MUTHUSWAMY Sivakumar,
LANDRETH Bobby Dean,
PENNISI Robert W,
Patent and Priority Information (Country, Number, Date):
Patent: WO 200026980 A1 20000511 (WO 0026980)
Application: WO 99US23893 19991014 (PCT/WO US9923893)
Priority Application: US 98183459 19981030
Designated States: AL AM AT AU AZ BA BB BG BR BY CA CH CN CU CZ DE DK EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MD MG MK MN MW MX NO NZ PL PT RO RU SD SE SG SI SK SL TJ TM TR TT UA UG UZ VN YU ZW GH GM KE LS MW SD SL SZ TZ UG ZW AM AZ BY KG KZ MD RU TJ TM AT BE CH CY DE DK ES FI FR GB GR IE IT LU MC NL PT SE BF BJ CF CG CI CM GA GN GW ML MR NE SN TD TG
Main International Patent Class: H01M-008/02
Publication Language: English
Fulltext Availability:
Detailed Description
Claims
Fulltext Word Count: 3713

English Abstract
A planar fuel cell (20) is provided, including a membrane **electrode** assembly (23) **sandwiched between two current collector** assemblies (21, 22). The membrane **electrode** assembly is a single sheet of a **polymer electrolyte** membrane with an array of **anodes** (27) on one side and an array of corresponding **cathodes** (28) on the other side. The current collectors (25) can be supported by a plastic frame (24), and they have an interconnect tab (26) that provides an electrical pathway to the exterior of the membrane **electrode** assembly. The interconnect tab is situated to provide electron transfer between the **anodes** and the

cathodes such that the interconnect tab does not traverse the thickness of the **polymer electrolyte** membrane. When the planar fuel cell is assembled, the interconnect tab is sealed to prevent leaking of fuel or oxidant gases. Fuel is distributed (36) to only one side of the membrane **electrode** assembly and oxidant is distributed (36) only to the other side.

French Abstract

Pile (20) a combustible plane, qui comporte un ensemble electrode (23) sous forme de membrane placee en sandwich entre deux ensembles (21, 22) collecteurs de courant. L'ensemble electrode sous forme de membrane est constitue d'une seule feuille d'une membrane electrolytique polymere dotee d'un groupe d'anodes (27) d'un cote et d'un groupe de cathodes (28) correspondantes de l'autre cote. Les collecteurs de courant (25) peuvent etre supportes par un cadre en plastique (24) et ils possedent une languette d'interconnexion (26) qui fournit une trajectoire electrique vers l'exterieur de l'ensemble electrode sous forme de membrane. La languette d'interconnexion, destinee a fournir un transfert d'electrons entre anodes et cathodes, est disposee de maniere telle qu'elle ne traverse pas la membrane electrolytique polymere dans son epaisseur. Lorsque la pile a combustible plane est assemblee, la languette d'interconnexion est etancheifiee pour empecher la fuite de combustible ou de gaz oxydants. Le combustible est reparti (36) sur une face seulement de l'ensemble electrode sous forme de membrane et l'oxydant est reparti (36) uniquement sur l'autre face.

Fulltext Availability:
Detailed Description
Claims

English Abstract

A planar fuel cell (20) is provided, including a membrane **electrode** assembly (23) **sandwiched between two current collector** assemblies (21, 22). The membrane **electrode** assembly is a single sheet of a **polymer electrolyte** membrane with an array of **anodes** (27) on one side and an array of corresponding **cathodes** (28) on the other side. The current collectors (25) can be supported by a plastic...

...an interconnect tab (26) that provides an electrical pathway to the exterior of the membrane **electrode** assembly. The interconnect tab is situated to provide electron transfer between the **anodes** and the **cathodes** such that the interconnect tab does not traverse the thickness of the **polymer electrolyte** membrane. When the planar fuel cell is assembled, the interconnect tab is sealed to prevent...

...fuel or oxidant gases. Fuel is distributed (36) to only one side of the membrane **electrode** assembly and oxidant is distributed (36) only to the other side.

Detailed Description

... is created by sandwiching a membrane electrode assembly between two current collector assemblies. The membrane **electrode** assembly (MEA) is a single sheet of a **polymer electrolyte** membrane with an array of **anodes** on one side and an array of corresponding **cathodes** on the other side. The current collectors may be supported by a plastic frame, and...

...perimeter of the MEA. The interconnect tab is situated to provide electron transfer between the **anodes** and the **cathodes** such that the interconnect tab does not traverse the thickness of the **polymer electrolyte** membrane. When the planar fuel cell is assembled, the interconnect tab is ...of fuel or oxidant gases. Fuel is distributed to only one side of the membrane **electrode** assembly and oxidant is distributed only to the other side.

In our preferred embodiment, the...

Claim
... interconnect tab
embedded into the thermoplastic frame to provide a gas tight seal;
a membrane **electrode** assembly, comprising a single sheet of a **polymer** **electrolyte** membrane having an array of **anodes** disposed on a first major side and an array of corresponding **cathodes** disposed on a second opposing major side, all **anodes** being on the first major side of the sheet and all **cathodes** being on the second major side;
the membrane **electrode** assembly disposed between the first and **second** planar **current** **collector** assemblies such that said array of **anodes** is adjacent to the array of current collectors in the first current collector assembly and said array of **cathodes** is adjacent to the array of current collectors in the **second** **current** **collector** assembly;
the first and **second** planar **current** **collector** assemblies bonded to each other at their perimeters such that a gas tight seal is formed about the membrane **electrode** assembly; and
the interconnect tabs from the first and **second** planar **current** **collector** assemblies arranged to provide an electron transfer path from an **anode** to a neighboring **cathode** such that the electron transfer path does not traverse the thickness of the **polymer** **electrolyte**
3 0 membrane.

5 A planar fuel cell, comprising:
first and second current collector assemblies...

23/5,K/10 (Item 9 from file: 349)
DIALOG(R)File 349:PCT FULLTEXT

00556179 **Image available**
COMPOSITE ELECTRODE INCLUDING PTC POLYMER
ELECTRODE COMPOSITE COMPRENANT UN POLYMERE PTC
Patent Applicant/Assignee:
DASGUPTA Sankar,
JACOBS James K,
Inventor(s):
DASGUPTA Sankar,
JACOBS James K,
Patent and Priority Information (Country, Number, Date):
Patent: WO 200019552 A1 20000406 (WO 0019552)
Application: WO 99CA863 19990921 (PCT/WO CA9900863)
Priority Application: US 98161664 19980929
Designated States: AU BR CA CN IN JP KR SG AT BE CH CY DE DK ES FI FR GB GR IE IT LU MC NL PT SE
Main International Patent Class: **H01M-004/02**
International Patent Class: H01C-007/02; **H01M-010/40**
Publication Language: English
Fulltext Availability:
Detailed Description
Claims
Fulltext Word Count: 5504

English Abstract
A composite electrode (18) for a rechargeable lithium battery is described. The composite electrode has a metallic current collector (12) in contact with an electrically conducting organic polymer laminate (14) made of a blended and annealed polymeric mixture containing fine carbon particles, and coated with an electrode-active substance bearing layer (16). The conducting polymer is capable of reversible resistivity changes of several orders of magnitude in only a portion of the laminate, thereby

reducing locally excessive current flow and over-heating in the rechargeable lithium battery.

French Abstract
L'invention porte sur une electrode (18) composite destinee a une batterie au lithium rechargeable. Cette electrode composite comporte un collecteur (12) de courant metallique en contact avec un lamelle (14) polymere organique electroconducteur constitue d'un melange polymere brasse et recuit contenant de fines particules de carbone et recouvert d'une couche (16) support d'une substance active de l'electrode. Le polymere conducteur est capable de transformations reversibles de la resistivite de plusieurs ordres de grandeur dans une partie uniquement du lamelle, ce qui reduit l'ecoulement de courant excessif local et cree une surchauffe dans la batterie au lithium rechargeable.

Main International Patent Class: **H01M-004/02**
...International Patent Class: **H01M-010/40**
Fulltext Availability:
Detailed Description

Detailed Description
... present in the electrolyte, There are known methods for applying such adhesive layers.

A composite **electrode** , and a lithium battery having **electrodes** of opposite polarity both in the form of composite **electrode** made in accordance with this invention, are schematically represented on Fig.1a and Fig.1b, Fig,1a shows a composite **electrode** 10, assembled according to this SUBSTITUTE SHEET (RULE 26) invention, where 12 is the metallic current collector, 14 is the electrically conductive organic **polymer** laminate, and 16 is the **electrode** -active substance containing layer, Reference numeral 18 represents the assembled composite **electrode** , which may optionally, carry a lithium ion bearing adhesive layer 22, Fig e 1b represents schematically a lithium electrochemical ceLl 20, made of two composite **electrodes** of opposite polarity, and having **electrolyte** layer 26 between the composite **anode** 18, and composite **cathode** 24. In Fig.1b 12 and 121 are metallic current collector sheets, 14 and 141 are the electrically conductive organic **polymer** layers, which may be of the same composition or may be different, and 16 and 17 represent layers containing **electrode** -active components of opposite polarity. Lithium ion containing adhesive layers (not shown) is may be inserted between each composite **electrode** and the appropriate face of the non-aqueous **electrolyte** ,
EXAMPLE 1
An electrically conductive composition was prepared of a blended **polymer** mixture of low density polyethylene and ethylene vinyl acetate in a ratio of 5:1...

...known manner, then extruded and annealed at 180*C for 18 hours, and the annealed **polymer** was laminated over a copper foil to yield current collector sheets of 27 pm thickness...

...was found to be WC, about which the resistivity changed 2 orders of magnitude, The **two - layer current collector** was cut to rectangles of 62mm x 480mm, and one face of a rectangle was coated in 0.2 mm thickness with a graphite containing **anode** mixture, The **anode** mixture was composed of graphite powder marketed as "Lonza SFG-1511, and polyvinylidene fluoride binder...

...marketed under the name of "Celgard", and cut to the same size as the composite **anode** made of copper foil, electrically conducting SUBSTITUTE SHEET (RULE 26) polyethylene-ethylene vinyl acetate-carbon laminate and

graphite layer, and was placed over the free face of the **anode** layer, The other side of the porous polypropylene separator was coated with a **cathode** mixture in 0,2 mm thickness, by the doctor's blade method, The **cathode** mixture contained lithium cobalt oxide particles to which 3 wt,% polyvinylidene fluoride and 4 wt.% fine carbon had been added. The free face of the **cathode** layer was subsequently brought in contact with another rectangle of a **two** -layered **current collector** , which was made up of electrically conducting polyethylene-ethylene vinyl acetate-carbon **polymer** laminate and aluminum foil, having the aluminum foil on the external face. The assembled rechargeable...

...plastic coated metallic cylinder of 65mm length and 18mm diameter,, and subsequently filled with an **electrolyte** solution under vacuum and sealed. The **electrolyte** solution comprised ethylene carbonate-dimethyl carbonate in a ratio of 1:1 as solvent and...

...C showing a resistivity change around this temperature of about 3 orders of magnitude. The **two @ layer current collector** was cut to rectangles of 10 cm x 12 cm,, and one face of a rectangle was coated in 0.2 mm thickness with a graphite containing **anode** mixture, The **anode** mixture was composed of graphite powder marketed as "Lonza SFG-1511, and polyvinylidene fluoride binder...

23/5,K/11 (Item 10 from file: 349)

00476946 **Image available**

NONAQUEOUS ELECTRICAL STORAGE DEVICE
DISPOSITIF DE STOCKAGE ELECTRIQUE NON AQUEUX

Patent Applicant/Assignee:
COVALENT ASSOCIATES INC,
Inventor(s):
McEWEN Alan B,
EVANS David A,
BLAKLEY Thomas J,
GOLDMAN Jay L,

Patent and Priority Information (Country, Number, Date):
Patent: WO 9908298 A1 19990218
Application: WO 98US16626 19980810 (PCT/WO US9816626)
Priority Application: US 97910146 19970812
Designated States: JP AT BE CH CY DE DK ES FI FR GB GR IE IT LU MC NL PT SE
Main International Patent Class: H01G-009/00
International Patent Class: H01G-009/04
Publication Language: English
Fulltext Availability:
Detailed Description
Claims
Fulltext Word Count: 7630

English Abstract
An electrochemical capacitor is disclosed that features two, separated, high surface area carbon cloth **electrodes** (16, 18) **sandwiched between two current collectors** (12, 14) fabricated of a conductive **polymer** having a flow temperature greater than 130 degrees Celsius, with the perimeter of the electrochemical being sealed with a high temperature gasket (20) to form a single cell device. The gasket material is a thermoplastic stable at temperature greater than 100 degrees Celsius, preferably a polyester or a polyurethane, and having a reflow temperature above 130 degrees Celsius but below the softening temperature of the current collector material. The capacitor packaging has good mechanical integrity over a wide temperature range, contributes little to the device equivalent series resistance, and is designed to be easily

manufactured by assembly line methods. The individual cells can be stacked in parallel or series configuration to reach the desired device voltage and capacitance.

French Abstract
L'invention concerne un condensateur electrochimique presentant deux electrodes (16, 18) en fibre de carbone, de grande surface, separees, se trouvant entre deux collecteurs (12, 14) de courant fabriques en un polymere conducteur ayant une temperature de fluidite superieure a 130 degreesC, le pourtour du dispositif electrochimique etant scelle avec un joint d'etancheite (20) pour temperatures elevees afin de former une seule cellule. Le joint d'etancheite est en matiere thermoplastique stable a une temperature superieure a 100 degreesC, de preference un polyester ou un polyurethanne, dont la temperature de refusion est superieure a 130 degreesC, mais inferieure a la temperature de ramollissement du materiau du collecteur de courant. Le boitier du condensateur presente une bonne integrite mecanique sur une large gamme de temperatures, contribue peu a la resistance serie equivalente du dispositif et est concu pour etre facile a fabriquer sur des chaines de montage. Les cellules individuelles peuvent etre montees en parallele ou en serie afin d'atteindre la tension et la capacite du dispositif voulues.

Fulltext Availability:
Detailed Description

English Abstract
An electrochemical capacitor is disclosed that features two, separated, high surface area carbon cloth **electrodes** (16, 18) **sandwiched between two current collectors** (12, 14) fabricated of a conductive **polymer** having a flow temperature greater than 130 degrees Celsius, with the perimeter of the electrochemical...

Detailed Description
... electrochemical capacitor of the invention includes two separated high surface area, e.g., carbon, electrodes **sandwiched between two current collectors** fabricated of a conductive **polymer** having a flow temperature greater than 1301C or a corrosion resistant steel. The perimeter of...

23/5,K/12 (Item 11 from file: 349)
DIALOG(R)File 349:PCT FULLTEXT

00390657 **Image available**
METHOD AND APPARATUS FOR PREPARING ELECTROCHEMICAL CELLS
PROCEDE ET DISPOSITIF DE REALISATION DE CELLULES ELECTROCHIMIQUES
Patent Applicant/Assignee:
VALENCE TECHNOLOGY INC,
VELASQUEZ David A,
HOLMES Douglas B,
GOGOLIN E Lawrence,
Inventor(s):
VELASQUEZ David A,
HOLMES Douglas B,
GOGOLIN E Lawrence,
Patent and Priority Information (Country, Number, Date):
Patent: WO 9731400 A1 19970828
Application: WO 97US2305 19970220 (PCT/WO US9702305)
Priority Application: US 96603894 19960222; US 96630983 19960412; US 96630985 19960412
Designated States: AL AM AT AU AZ BA BB BG BR BY CA CH CN CU CZ DE DK EE ES FI GB GE HU IL IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MD MG MK MN MW MX NO NZ PL PT RO RU SD SE SG SI SK TJ TM TR TT UA UG US UZ VN KE LS MW SD SZ UG AM AZ BY KG KZ MD RU TJ TM AT BE CH DE DK ES FI FR GB GR IE IT LU MC NL PT SE BF BJ CF CG CI CM GA GN ML MR NE SN TD TG

Main International Patent Class: **H01M-010/04**
International Patent Class: H01M-06:46
Publication Language: English
Fulltext Availability:
  Detailed Description
  Claims
Fulltext Word Count: 12955

English Abstract
A method of fabricating electrochemical cells and batteries wherein the successive anode and cathode layers are separated by a polymeric electrolyte layer having a protruding polymer edge around its perimeter which reduces the likelihood of inadvertent contact between the anode and cathode current collectors is provided. The polymer edge functions as a non-conducting physical barrier positioned between adjacent current collectors. An apparatus for preparing electrochemical cells is also disclosed.

French Abstract
La presente invention concerne un procede de fabrication de cellules et de piles electrochimiques dans lesquelles les couches successives d'anode et de cathode sont separees par une couche d'electrolyte polymere presentant sur son pourtour un rebord polymere protuberant qui reduit la probabilite de contact accidentel entre les collecteurs de courant de l'anode et de la cathode. Le rebord polymere fonctionne comme une barriere physique non conductrice disposee entre des collecteurs de courant adjacents. L'invention concerne egalement un dispositif de realisation de cellules electrochimiques.

Main International Patent Class: **H01M-010/04**
Fulltext Availability:
  Claims

Claim
... The apparatus as set forth in claim 21, further comprising a third laminating station, a **second** cathode **current collector** being laminated to at least one second cathode material film on at least one side of the **second** cathode **current collector** to form a second cathode precursor at the second laminating station, the second cathode precursor...

...same as the first cathode precursor, and the second cathode material film including the second **polymer** , the cathode active material, and the second plasticizer, wherein, at the assembling station, a second...

...anode precursor and the second cathode precursor such that the polymeric layer prevents direct contact **between** the anode **current collector** and the **second** cathode **current collector** , and, at the fusion station, the
polymeric layer is fused to the anode precursor and...between the anode precursor and a second cathode precursor, the second
cathode precursor including a **second** cathode **current collector** laminated to at - 40 least one second cathode material film on at least one side of the **second** cathode **current collector** , the second cathode precursor being substantially the same as the first cathode precursor, and the second cathode material film including the second **polymer** , the cathode active material, and the second plasticizer, such that the polymeric layer prevents direct contact **between** the anode **current collector** and the **second cathode current collector** , and, at the fusion station, the polymeric layer is fused to the **anode** precursor and the second **cathode** precursor to form the bicell battery.

33 The apparatus as set forth in claim 32...third laminating station, the second cathode material film is laminated to both sides of the **second** cathode **current collector** . - 41
. An apparatus for activating an electrochemical cell, the electrochemical cell including one or more...

...least one side of the anode current collector, the anode material film including a first **polymer** , an intercalation carbon material, and a first plasticizer, a cathode precursor, the cathode precursor including ...

...least one side of the cathode current collector, the cathode material film including a second **polymer** , a cathode active material, and a second plasticizer, and a polymeric layer including a third...

...the cathode precursor at the assembling station such that the polymeric layer prevents direct contact **between** the **anode current collector** and the **cathode current collector** , the polymeric **layer** being fused between the **anode** precursor and the **cathode** precursor, the first, second, and third plasticizers having been extracted from the **anode** precursor, the **cathode** precursor, and the polymeric layer to form pores therein, comprising: a first filling station, a first amount of an **electrolyte** solution including an **electrolyte** solvent and an inorganic salt being filled into the receptacle such that the **electrolyte** solution is absorbed into pores in the **anode** precursor, the **cathode** precursor, and the polymeric layer at the first filling station; one or more subsequent filling stations disposed downstream from the first filling station, subsequent amounts of the **electrolyte** solution being filled into the receptacle at the subsequent filling stations such that the **electrolyte** solution is absorbed into pores in the **anode** precursor, the **cathode** precursor, and the polymeric layer at the subsequent filling stations, the subsequent amounts of the **electrolyte** solution added at each subsequent filling station being no more than - 42 equal to the...

23/5,K/13 (Item 12 from file: 349)
DIALOG(R)File 349:PCT FULLTEXT

00368442 **Image available**
CURRENT COLLECTOR HAVING ELECTRODE MATERIAL ON TWO SIDES FOR USE IN A LAMINATE BATTERY AND METHOD OF MAKING A BATTERY
COLLECTEUR DE COURANT A MATERIAU D'ELECTRODE DISPOSE SUR DEUX COTES, DESTINE A UNE BATTERIE STRATIFIEE ET PROCEDE DE FABRICATION DE CETTE BATTERIE
Patent Applicant/Assignee:
VALENCE TECHNOLOGY INC,
Inventor(s):
CHEU S Scot,
Patent and Priority Information (Country, Number, Date):
Patent: WO 9708769 A1 19970306
Application: WO 96US13131 19960813 (PCT/WO US9613131)
Priority Application: US 95519473 19950825
Designated States: AL AM AT AU AZ BB BG BR BY CA CH CN CU CZ DE DK EE ES FI GB GE HU IL IS JP KE KG KP KR KZ LK LR LS LT LU LV MD MG MK MN MW MX NO NZ PL PT RO RU SD SE SG SI SK TJ TM TR TT UA UG UZ VN KE LS MW SD SZ UG AM AZ BY KG KZ MD RU TJ TM AT BE CH DE DK ES FI FR GB GR IE IT LU MC NL PT SE BF BJ CF CG CI CM GA GN ML MR NE SN TD TG
Main International Patent Class: **H01M-010/04**
International Patent Class: H01M-06:46
Publication Language: English
Fulltext Availability:
Detailed Description
Claims
Fulltext Word Count: 4643

English Abstract
In a laminate battery cell, a sheet-like current collector is provided with electrode material in electrical contact with two sides of the

current collector. Solid electrolyte material contacts the electrode material and separates the electrode material from an electrode material with a different electromotive potential. An extended portion of the current collector is provided to facilitate forming electrical connections with the current collector and the electrode material and to facilitate cooling of the battery cell.

French Abstract
Dans un element de batterie stratifiee, un collecteur de courant de type a feuille presente un materiau d'electrode en contact electrique avec ses deux cotes. Un materiau d'electrolyte solide, en contact avec le materiau d'electrode, separe ce dernier d'un autre materiau d'electrode a potentiel electromoteur different. Le collecteur de courant comprend une partie en prolongement destinee a faciliter l'etablissement de ses connexions electriques avec le materiau d'electrode et le refroidissement de l'element de batterie.

Main International Patent Class: **H01M-010/04**
Fulltext Availability:
Detailed Description

Detailed Description
... cathode laminate 21 in that an electrical connection can be made directly with the cathode **current collector layer** .

The cathode **current collector layer** 23 is sheet-like and is preferably formed from a continuous current conducting web material, such as a nickel web or sheet. The **cathode** layer 25 is coated or covered onto the **cathode** current collector layer 23 and is selected from the group of materials
suited for storing ions released from an **anode** . The **cathode** layer 25 is
preferably a composite material including a vanadium oxide, V6013 or V308, material. The **electrolyte** layer 27 is a **polymer electrolyte** material that is coated or covered onto the **cathode** layer 25. The **cathode** layer 25 and the **electrolyte** layer 27 can be cured-in an electron beam curing apparatus (not
shown). U.S...

...No. 4,925,751 to Shackle et al. describes certain materials useful in forming the **cathode** layer 25, the **electrolyte** layer 27, and the **anode** laminate 41, and is incorporated by reference to the extent that it describes such materials...

23/5,K/14 (Item 13 from file: 349)
DIALOG(R)File 349:PCT FULLTEXT

00366242 **Image available**
LOW RESISTANCE RECHARGEABLE LITHIUM-ION BATTERY
BATTERIE A IONS LITHIUM, RECHARGEABLE ET DE BASSE RESISTANCE
Patent Applicant/Assignee:
BELL COMMUNICATIONS RESEARCH INC,
Inventor(s):
GOZDZ Antoni Stanislaw,
SCHMUTZ Caroline Nichole,
TARASCON Jean-Marie,
WARREN Paul Clifford,
Patent and Priority Information (Country, Number, Date):
Patent: WO 9706569 A1 19970220
Application: WO 96US11732 19960715 (PCT/WO US9611732)
Priority Application: US 95510835 19950803
Designated States: AU CA JP KR MX SG VN AT BE CH DE DK ES FI FR GB GR IE IT LU MC NL PT SE
Main International Patent Class: **H01M-004/64**
International Patent Class: H01M-10:36
Publication Language: English

Fulltext Availability:
  Detailed Description
  Claims
Fulltext Word Count: 4372

English Abstract
   A perforate current collector element (21) embedded within at least one of its polymeric intercalation electrodes (23) reduces the internal resistance of a flexible rechargeable lithium-ion battery (20).

French Abstract
   Un element (21) perfore, collecteur de courant, loge dans au moins une de ses electrodes polymeres (23) d'intercalation reduit la resistance interne d'une batterie (20) rechargeable et flexible a ions lithium.

Main International Patent Class: **H01M-004/64**
Fulltext Availability:
  Claims

Claim
... opposite polarity.

  8 A rechargeable lithium-ion battery structure comprising:
  a) a plurality of positive **electrode** elements made of a flexible **polymer** composition containing a lithiated intercalation compound;
  b) a negative **electrode** element made of a flexible polymeric matrix composition containing carbon as a material capable of lithium intercalation, wherein said negative **electrode** element is positioned between each of said positive **electrodes** ;
  c) a plurality of separator elements composed of a flexible polymeric film composition capable of...

...at least one of said separator elements being disposed on either side of said negative **electrode** , thereby separating the negative **electrode** from the positive **electrodes** ;
  d) a **plurality** of **current collectors** , wherein a **current collector** is **embedded** within each of said positive **electrodes** and said negative **electrode** ; and
  e) wherein each of said elements is bonded to contiguous elements to form a...

23/5,K/15 (Item 14 from file: 349)
DIALOG(R)File 349:PCT FULLTEXT

00363150 **Image available**
A WOUND ELECTROCHEMICAL CELL, A METHOD FOR THE MANUFACTURE THEREOF, AND THE USE OF SUCH ELECTROCHEMICAL CELLS
PILE ELECTROCHIMIQUE ENROULEE, SON PROCEDE DE PRODUCTION ET UTILISATION DE CE TYPE DE PILES ELECTROCHIMIQUES
Patent Applicant/Assignee:
  DANIONICS A S,
  YDE-ANDERSEN Steen,
  KATVA Ilmari,
Inventor(s):
  YDE-ANDERSEN Steen,
  KATVA Ilmari,
Patent and Priority Information (Country, Number, Date):
  Patent: WO 9703475 A1 19970130
  Application: WO 96DK309 19960708 (PCT/WO DK9600309)
  Priority Application: DK 80095 19950707
Designated States: AL AM AT AU AZ BB BG BR BY CA CH CN CZ DE DK EE ES FI GB GE HU IL IS JP KE KG KP KR KZ LK LR LS LT LU LV MD MG MK MN MW MX NO NZ PL PT RO RU SD SE SG SI SK TJ TM TR TT UA UG US UZ VN KE LS MW SD SZ UG

AM AZ BY KG KZ MD RU TJ TM AT BE CH DE DK ES FI FR GB GR IE IT LU MC NL PT SE BF BJ CF CG CI CM GA GN ML MR NE SN TD TG

Main International Patent Class: H01M-006/10

International Patent Class: H01M-02:26

Publication Language: English

Fulltext Availability:

Detailed Description

Claims

Fulltext Word Count: 8317

English Abstract

The present invention relates to an electrochemical cell composed of a laminate of two electrode structures in the form of current collectors coated with electrode material interposed electrolyte structures. The laminate is wound in a coil, and in at least the initial turn and the final turn, one of the current collectors has a protruding part extending beyond at least one of the edges of the other current collector in the same turn and in the following or previous turn, respectively, and the first current collector has a protruding part extending beyond one of the edge of the second collector foil, the protruding parts of the current collectors along the first and the second edge, respectively, of the laminate are sealed to each other optionally with interposed insulating polymer material.

French Abstract

Cette invention concerne une pile electrochimique constituee d'un stratifie forme de deux structures d'electrodes sous forme de collecteurs de courant revetus de structures electrolytes entre lesquelles est interpose le materiau d'electrode. Le stratifie est enroule de facon a former une bobine et, au niveau d'au moins sa spire initiale et sa spire finale, un des collecteurs possede une partie en saillie depassant au moins l'un des bords de l'autre collecteur au niveau de la meme spire et de la spire suivante ou precedente, et le premier collecteur possede une partie en saillie depassant l'un des bords de la seconde feuille du collecteur. Les parties en saillie des collecteurs le long du premier et du second bord, respectivement, du stratifie sont scellees l'une a l'autre, eventuellement avec interposition de materiau polymere isolant.

Fulltext Availability:

Claims

Claim

... first collector foil in its whole length, and this protruding part 336 is free of **electrode** material. The second **electrode** structure 330 is shorter than the first **electrode** structure 300. The **electrolyte** structures 320, 321, respectively, have a length and a width, a first edge 322, 326...

...and a second end 325, 329 extending along the width thereof. The length of the **electrolyte** structures 320f 321, ...respectively, is slightly longer than the length of the coated part 305 of the first **electrode** structure 300, and the width of the **electrolyte** structures 320f 321, respectively, is slightly broader than the width of the coated parts 305, 335 of the **electrode** structures 300, 330. The **electrode** structures 300, 330, and the **electrolyte** structures 320, 321 are placed on top of each other as shown in fig. 7, so that the first ends 304, 334 of the **electrode** structures are placed above each other,, and a **polymer** cover film strip 350 is placed below the laminate so that its covers the second end. The cover film is broader than any of the **electrolyte** structures 320, 321 and sufficiently long to cover the outer surface of the A flat...

...in the winding procedure. The first end of the laminate which consists of the first **electrode** structure 300 and the **electrolyte** structures

320j, 321 is inserted between the plates 340, and the core element 340 is...

...in the first coil edge 310 provided by the protruding part 306 of the first **electrode** structure surface of the cell, and a positive terminal in the second coil edge 311 provided by the protruding part 336 of the second **electrode** structure, The following examples illustrate production of two dif ferent preferred embodiments of the electrochemical...

...93 mm is coated on both sides with a 58 gm thick layer of an **anode** material consisting of a mixture of coke, LiPF6 and polyvinylidene fluoride as a binder, except...a thickness of 30 gm and a length of 450 mm, prepared with a thermosetting **electrolyte** composed of 110 parts by weight of LiPF6,, 710 parts by weight of a 1...

...which strip is coated on both sides with a 108 gm thick layer of a **cathode** material consisting of a mixture of carbon black and LiMn2O4,, except for a 3 mm...
...second plastic film similar to the above-referred plastic film and prepared with a similar **electrolyte** is placed on top of said alu minium strip, two protruding parts of said plastic...said first 100 mm on both sides with a 58 gm thick layer of an **anode** material consisting of a mixture of coke, LiPF6 and polyvinyl idene fluoride as a binder...

...the coated part of the copper strip. The plastic film is prepared with a thermosetting **electrolyte** composed of 110 parts by weight of LiPF6, 710 parts by weight of a 1...

...said last 100 mm on both sides with a 108 gm thick layer of a **cathode** material consisting of a mixture of carbon black and LiMn2O4. The remaining 45 mm piece...

...the aluminium strip. This piece of plastic film is also prepared with the above-mentioned **electrolyte** . The resulting battery laminate is wound on a cylindrical mandrel (diameter = 3,,6 mm) starting from the end from which the 62 mm piece of **anode** current collector protrudes. Thus, the initial turns are provided by the pro truding copper foil...more particularly, the current collector metal foils provide a water-impermeable seal. The glue present **between** the **two** **current** **collectors** provides an electrical insulation sufficient for avoiding short-circuiting of the cell.
SUBSTITUTE SHEET (RULE...
?

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=> d query
L2      1351768 SEA FILE=HCA POLYMER# OR HOMOPOLYMER# OR COPOLYMER# OR
                TERPOLYMER#
L3        94865 SEA FILE=HCA L2(6A)(HEAT? OR HOT# OR MELT# OR WARM## OR
                WARMING OR CALEFACT? OR TORREFACT? OR PYROL? OR PYROG? OR
                SINTER? OR THERMOL?)
L4        50441 SEA FILE=HCA L2(6A)(THERMAL? OR TEPEFACT? OR PREHEAT? OR FUSE#
                OR FUSING OR FUSION?)
L5         5891 SEA FILE=HCA L2(6A)(HIGHER OR HIGH OR RAIS? OR HEIGHTEN?)(2A)(T
                EMP# OR TEMPERATURE?)
L6         5736 SEA FILE=HCA CURRENT(2A)COLLECT?
L8           29 SEA FILE=HCA (PLURALITY OR MANY OR MULTI OR SEVERAL OR TWO OR
                NUMBER OR NUMEROUS OR MULTIPLE OR MULTITUD? OR PLURIF? OR
                SECOND OR MORE)(1W)L6
L9            2 SEA FILE=HCA MULTILAYER?(1W)L6
L13           0 SEA FILE=HCA (L3 OR L4 OR L5) AND (L8 OR L9)


=> d query
L1       669328 SEA FILE=HCA ELECTRODE# OR MICROELECTRODE# OR ELECTOLYTE# OR
                ANOD## OR CATHOD## OR KATHOD## OR POSODE## OR KATOD## OR
                NEGOD##
L6         5736 SEA FILE=HCA CURRENT(2A)COLLECT?
L8           29 SEA FILE=HCA (PLURALITY OR MANY OR MULTI OR SEVERAL OR TWO OR
                NUMBER OR NUMEROUS OR MULTIPLE OR MULTITUD? OR PLURIF? OR
                SECOND OR MORE)(1W)L6
L9            2 SEA FILE=HCA MULTILAYER?(1W)L6
L10         182 SEA FILE=HCA L6(3A)(SPACE# OR SPACING OR INTERSPACE? OR
                INTERSTICE? OR SEPARAT? OR SEP# OR CLEARANCE? OR INTERVAL?)
L11         268 SEA FILE=HCA L6(3A)(LAYER? OR STRATA# OR STRATUM# OR INTERLAY?
                OR INTERLAID?)
L12         312 SEA FILE=HCA L6(3A)(INSERT? OR INTERPOS? OR INSINUAT? OR
                BETWEEN OR SANDWICH? OR EMBED? OR BETWIXT OR INTRODUC? OR
                INTERVEN? OR INTERLARD? OR INTERJECT?)
L14           8 SEA FILE=HCA L1 AND (L8 OR L9) AND (L10 OR L11 OR L12)


=> d cbib abs l14 1-8

L14  ANSWER 1 OF 8  HCA  COPYRIGHT 2002 ACS
135:346862  Sandwich cathode design for alkali metal electrochemical
     cell with high discharge rate capability.  Gan, Hong (Wilson Greatbatch
     Limited, USA).  Eur. Pat. Appl. EP 1150366 A2 20011031, 19 pp.  DESIGNATED
     STATES: R:  AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC,
     PT, IE, SI, LT, LV, FI, RO.  (English).  CODEN: EPXXDW.  APPLICATION: EP
     2001-303866 20010427.  PRIORITY: US 2000-560060 20000427.
AB   A new sandwich cathode design having a first cathode
     active material of a relatively high energy d. but of a relatively low
     rate capability sandwiched between two
     current collectors and with a second cathode
     active material having a relatively low energy d. but of a relatively high
     rate capability in contact with the opposite sides of the two
     current collectors, is disclosed.  The present
     cathode design is useful for powering an implantable medical
     device requiring a high rate discharge application.

L14  ANSWER 2 OF 8  HCA  COPYRIGHT 2002 ACS
135:21967  Battery cell having notched layers and a method for producing the
     same.  Gross, Oliver J. (Valence Technology, Inc., USA).  PCT Int. Appl.
     WO 2001041245 A1 20010607, 33 pp.  DESIGNATED STATES: W:  AE, AG, AL, AM,
     AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CR, CU, CZ, DE, DK, DM,
     DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG,
     KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ,
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NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM; RW: AT, BE, BF, BJ, CF, CG, CH, CI, CM, CY, DE, DK, ES, FI, FR, GA, GB, GR, IE, IT, LU, MC, ML, MR, NE, NL, PT, SE, SN, TD, TG, TR. (English). CODEN: PIXXD2. APPLICATION: WO 2000-US30270 20001102. PRIORITY: US 1999-451901 19991201.

AB The invention provides a battery cell including an **electrode** having an area defined by a perimeter including an edge, a counter **electrode** having an area defined by a perimeter including an edge, and a separator having an area defined by a perimeter including an edge. The separator is sandwiched between the **electrode** and the counter **electrode** in a layered relationship with at least portions of the edges being contiguous. The separator and one of the **electrode** and the counter **electrode** each include a first notch in the edge exposing a portion of the other of the **electrode** and counter **electrode**. The separator and the other of the **electrode** and the counter **electrode** each include a second notch in the edge exposing a portion of the one of the **electrode** and the counter **electrode**. A method of producing a battery cell having a plurality of film **layers**, a **plurality** of **current collector layers** , and at least one **separator layer**, with each **current collector layer** including a predetd. lead portion, is also provided. The method includes the steps of: providing at least one notch in each layer, and stacking the layers with the notches arranged with one another to expose the predetd. lead portion of each **current collector layer**.

L14 ANSWER 3 OF 8 HCA COPYRIGHT 2002 ACS

132:310866 Planar fuel cell. Pratt, Steven D.; Kelley, Ronald J.; Muthuswamy, Sivakumar; Landreth, Bobby Dean; Pennisi, Robert W. (Motorola Inc., USA). PCT Int. Appl. WO 2000026980 A1 20000511, 24 pp. DESIGNATED STATES: W: AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, UZ, VN, YU, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM; RW: AT, BE, BF, BJ, CF, CG, CH, CI, CM, CY, DE, DK, ES, FI, FR, GA, GB, GR, IE, IT, LU, MC, ML, MR, NE, NL, PT, SE, SN, TD, TG. (English). CODEN: PIXXD2. APPLICATION: WO 1999-US23893 19991014. PRIORITY: US 1998-183459 19981030.

AB A planar fuel cell includes a membrane **electrode** assembly **sandwiched between two current collector** assemblies. The membrane **electrode** assembly is a single sheet of a polymer electrolyte membrane with an array of **anodes** on one side and an array of corresponding **cathodes** on the other side. The current collectors can be supported by a plastic frame, and they have an interconnect tab that provides an elec. pathway to the exterior of the membrane **electrode** assembly. The interconnect tab is situated to provide electron transfer between the **anodes** and the **cathodes** such that the interconnect tab does not traverse the thickness of the polymer electrolyte membrane. When the planar fuel cell is assembled, the interconnect tab is sealed to prevent leaking of fuel or oxidant gases. Fuel is distributed to only one side of the membrane **electrode** assembly and oxidant is distributed only to the other side.

L14 ANSWER 4 OF 8 HCA COPYRIGHT 2002 ACS

132:259851 Easy-to-manipulate strip-shaped electrochemical sensor for measuring device. Frenkel, Erik Jan; Jaeger, Gerard (Asulab S.A., Switz.). Eur. Pat. Appl. EP 992790 A1 20000412, 7 pp. DESIGNATED STATES: R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO. (French). CODEN: EPXXDW. APPLICATION: EP 1998-119146 19981009.

AB An electrochem. sensor, in the form of a small strip, consists of a thin plastic substrate that supports at least **two collectors** of elec. **current sepd.** by an elec. insulating space, all of which are covered by a plastic covering. Two windows are cut through the plastic covering, one of which exposes at least a portion of the two collectors, and the other, at the opposite end, to expose working and ref. **electrodes**. A knob is located on the flat sensor at a location between the end of the sensor and the exposed **electrodes** . This knob, which is fabricated by cold or hot deformation of the external face of the substrate, permits easy phys. manipulation of the sensor by provided a source of seizure or obstruction of movement of the sensor (e.g., within a device). The sensor can also be used for biol. sensing (e.g., with glucose oxidase enzyme **electrodes**).

L14 ANSWER 5 OF 8 HCA COPYRIGHT 2002 ACS

131:104427 Electroactive polymer materials for solid-polymer fuel cells. Kim, Kwang J.; Shahinpoor, Mohsen; Razani, Arsalan (Artifical Muscles Res. Inst. (AMRI), School of Eng. and Sch. Med., The Univ. of New Mexico, Albuquerque, NM, USA). Proceedings of SPIE-The International Society for Optical Engineering, 3669(Electroactive Polymer Actuators and Devices), 385-393 (English) 1999. CODEN: PSISDG. ISSN: 0277-786X. Publisher: SPIE-The International Society for Optical Engineering.

AB A review with 67 refs. on the potential use of electroactive polymer materials for solid-polymer fuel cells. In order to realize the fast intrinsic kinetics of the **cathode** reaction an efficient utilization of the Pt catalyst is necessary. In this sense, a novel concept of a fabrication technique of the membrane-**electrode** assembly (MEA) that consists of a Pt-deposited ion exchange membrane and **two current collectors** is **introduced** . It appears that the manufg. process of such MEAs is simple, efficient, and economical, relative to the current state-of-art MEA technol. that employs various particle distribution techniques. Also, it should be pointed out that the use of this new MEA fabrication technique could improve the rate d. of H+ transport significantly.

L14 ANSWER 6 OF 8 HCA COPYRIGHT 2002 ACS

130:258622 Transfer matrix method for the electrochemical impedance of inhomogeneous porous **electrodes** and membranes. Nguyen, P. H.; Paasch, G. (Institut fur Festkorper- und Werkstofforschung Dresden, Dresden, D-01171, Germany). Journal of Electroanalytical Chemistry, 460(1,2), 63-79 (English) 1999. CODEN: JECHES. ISSN: 0368-1874. Publisher: Elsevier Science S.A..

AB The method presented here is based on the two-phase model of a porous system with two continuous subsystems, electrons in the porous material and ions in the pore electrolyte. Both are continuously interconnected via the pore surfaces e.g. by the double layer capacity and/or the charge transfer resistance. The equivalent circuit for this system is the transmission line model. The method applies to systems with parameters which are not const. across the layer. The layer is divided into a no. of slabs and in each slab all parameters are replaced by their mean values. The potentials and the currents of two adjacent slabs are connected by a matrix, in the general case a 4.times.4 matrix. The potential propagation in the whole layer is detd. by the product matrix. The impedance for both a **layer** coating a metallic **current collector** and a porous membrane embedded in the electrolyte (or the porous layer with electrolyte-filled pores in **between two** metallic **current collectors**) can be expressed by the elements of the product matrix. The matrix is reduced to a 2.times.2-form if one of the resistivities is negligible. In this case for a system of two homogeneous sublayers an anal. formulation is given. The method is applied to a system with an interconnection consisting of double layer capacity, charge transfer resistance and its hindrance by finite diffusion (applicable to polymers). Here the inhomogeneity gradients of the

resistivities are considered. It is demonstrated that they can result in significant qual. modifications of the impedance. This concerns esp. the low frequency pseudo-capacitive behavior which is transformed into a dependence resembling the well known empirical description by const. phase elements often used to interpolate exptl. data.

L14 ANSWER 7 OF 8 HCA COPYRIGHT 2002 ACS

119:230012 Factors affecting the internal resistance of silver/silver molybdate/iodine cells. Arof, A. K. (Cent. Found. Stud. Sci., Univ. Malaya, Kuala, 59100, Malay.). Journal of Power Sources, 45(2), 255-61 (English) 1993. CODEN: JPSODZ. ISSN: 0378-7753.

AB A Ag molybdate glass with the mol% stoichiometry of 60 AgI-20 Ag2O-20 MoO3 is prepd. by liq. N temp. quenching of the melt. The glassy nature of the phase was confirmed by powder x-ray diffraction. The cond. of the glass from impedance spectroscopy is of the order of 10-3 S/cm at 300 K. The glass is an electrolyte and was used to manuf. several Ag/I batteries in which Ag is mixed in different proportions with the solid electrolyte to obtain battery **anode**. The **cathode** consists of a fixed ratio of iodine, electrolyte, and carbon. If the **cathode** disk is placed over the electrolyte surface of the **anode**/electrolyte disk and clamped **between two** Cu **current collectors**, the battery with a 1:1 wt. ratio of Ag powder and the electrolyte shows the lowest internal resistance. A second battery was manufd. with this **anode** compn., but the **anode**, electrolyte, and **cathode** are pressed together to form a single solid disk so as to eliminate **cathode**/electrolyte interfacial resistance that also contributes to the total internal resistance of the battery. For batteries with a compn. of 1:1 Ag powder and electrolyte wt. ratio, the internal resistance of the battery decreases from 2.3 k.OMEGA. when the **cathode** and **anode**/electrolyte layers of the battery are pressed sep. to 0.15 k.OMEGA. for a battery with the **anode**, electrolyte, and **cathode** pressed together. The value of 0.15 k.OMEGA. is in reasonable agreement with the bulk resistance of the electrolyte as obtained from the impedance plot.

L14 ANSWER 8 OF 8 HCA COPYRIGHT 2002 ACS

116:44112 Multilayer metal sheets for laminar batteries and manufacture of the batteries. Hasuda, Yoshiaki; Horie, Toshio; Ishizawa, Maki (Nippon Telegraph and Telephone Corp., Japan). Jpn. Kokai Tokkyo Koho JP 03163756 A2 19910715 Heisei, 5 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1989-299865 19891120.

AB The sheets, for use as collectors for sealed laminar batteries having **cathodes** and **anodes** on the same side of substrate films and sepd. from each other by an electrolyte, are coated with an epoxy resin layer and .gtoreq.1 layers of maleic anhydride-contg. chlorinated polyethylene, optionally mixed with other chlorinated polymers. The batteries are prepd. by coating the metal sheets with an epoxy resin, applying .gtoreq.1 layers of the chlorinated polyethylene on the coated sheets, and hot pressing the sheets to the substrate films. The sheets have strong bonding with the substrate films.

```
File   2:INSPEC 1969-2002/Oct W4
         (c) 2002 Institution of Electrical Engineers
File   6:NTIS 1964-2002/Oct W4
         (c) 2002 NTIS, Intl Cpyrght All Rights Res
File   8:Ei Compendex(R) 1970-2002/Oct W3
         (c) 2002 Engineering Info. Inc.
File  34:SciSearch(R) Cited Ref Sci 1990-2002/Oct W4
         (c) 2002 Inst for Sci Info
File  35:Dissertation Abs Online 1861-2002/Oct
         (c) 2002 ProQuest Info&Learning
File  65:Inside Conferences 1993-2002/Oct W4
         (c) 2002 BLDSC all rts. reserv.
File  94:JICST-EPlus 1985-2002/Aug W4
         (c)2002 Japan Science and Tech Corp(JST)
File  99:Wilson Appl. Sci & Tech Abs 1983-2002/Sep
         (c) 2002 The HW Wilson Co.
File 144:Pascal 1973-2002/Oct W4
         (c) 2002 INIST/CNRS
File 305:Analytical Abstracts 1980-2002/Oct W2
         (c) 2002 Royal Soc Chemistry
File 315:ChemEng & Biotec Abs 1970-2002/Sep
         (c) 2002 DECHEMA
File 323:RAPRA Rubber & Plastics 1972-2002/Dec
          (c) 2002 RAPRA Technology Ltd
File 434:SciSearch(R) Cited Ref Sci 1974-1989/Dec
         (c) 1998 Inst for Sci Info

Set     Items   Description
S1     305841   ELECTRODE# OR MICROELECTRODE# OR ELECTROLYTE# OR ANOD?? ? -
             OR CATHOD?? ? OR KATHOD?? ? OR POSODE?? ? OR KATOD?? ? OR NEG-
             OD?? ?
S2      12405   CURRENT(2N)COLLECT???? ?
S3         63   (PLURALITY OR MANY OR MULTI OR SEVERAL OR TWO OR NUMBER OR
             NUMEROUS OR MULTIPLE OR MULTITUD? OR PLURIF? OR SECOND OR MOR-
             E)(1W)S2
S4          0   MULTILAYER?(1W)S2
S5        150   S2(3N)(SPACE? ? OR SPACING? OR INTERSPAC???? ? OR INTERSTI-
             C? OR SEPARAT???? ? OR SEP? ? OR CLEARANCE? OR INTERVAL? ?)
S6        129   S2(3N)(LAYER? ? OR STRATA? ? OR STRATUM? ? OR INTERLAY? OR
             INTERLAID?)
S7        255   S2(3N)(INSERT? OR INTERPOS? OR INSINUAT? OR BETWEEN OR SAN-
             DWICH? OR EMBED? OR BETWIXT OR INTRODUC? OR INTERVEN? OR INTE-
             RLARD? OR INTERJECT?)
S8     814181   ELECTRODE? ? OR MICROELECTRODE? ? OR ELECTROLYTE? ?
S9         21   S3:S4(S)S5:S8
S10        21   S9(S)(S1 OR S8)
S11   1895283   POLYMER? ? OR HOMOPOLYMER? ? OR COPOLYMER? ? OR TERPOLYMER?
              ?
S12    161874   S11(6N)(HEAT? OR HOT? ? OR MELT??? ? OR WARM?? ? OR WARMING
             OR CALEFACT? OR TORREFACT? OR PYROL? OR PYROG? OR SINTER? OR
             THERMOL? OR THERMAL?)
S13      5279   S11(6N)(TEPEFACT? OR PREHEAT? OR FUSE? ? OR FUSING OR FUSI-
             ON)
S14     17352   S11(6N)(HIGH OR HIGHER OR RAIS? OR HEIGHTEN)(2N)(TEMP? ? OR
             TEMPERATURE? OR THERMAL?)
S15         6   S3:S4 AND S5:S7
S16         3   RD (unique items)
?t16/7/all

 16/7/1     (Item 1 from file: 2)
DIALOG(R)File   2:INSPEC
(c) 2002 Institution of Electrical Engineers. All rts. reserv.

4476163   INSPEC Abstract Number: A9320-8630D-003, B9310-8410-008
   Title: Factors affecting the internal resistance of silver/silver
molybdate/iodine cells
  Author(s): Arof, A.K.
  Author  Affiliation:  Centre  for  Found.  Studies in Sci., Malaya Univ.,
```

Kuala Lumpur, Malaysia
Journal: Journal of Power Sources vol.45, no.2 p.255-61
Publication Date: June 1993 Country of Publication: Switzerland
CODEN: JPSODZ ISSN: 0378-7753
U.S. Copyright Clearance Center Code: 0378-7753/93/$6.00
Language: English Document Type: Journal Paper (JP)
Treatment: Experimental (X)
Abstract: A silver molybdate glass with the mol.% stoichiometry of 60AgI-20Ag/sub 2/O-20MoO/sub 3/ is prepared by liquid nitrogen temperature quenching of the melt. The phase is an electrolyte and has been used to fabricate several iodine/silver electrochemical cells in which silver is mixed in different proportions with the solid electrolyte for the anode of the cells. If the cathode disc is placed over the electrolyte surface of the anode/electrolyte disc and clamped **between two** copper **current collectors** , the cell with a 1:1 weight ratio of silver powder and the electrolyte shows the lowest internal resistance. For the cells with a composition of 1:1 silver powder and electrolyte weight ratio, the internal resistance of the cell decreases from 2.3 k Omega when the cathode and anode/electrolyte layers of the cell are pressed separately to 0.15 k Omega for a cell with a anode, electrolyte and cathode pressed together. The value of 0.15 k Omega is in reasonable agreement with the bulk resistance of the electrolyte as obtained from the impedance plot. (11 Refs)
Subfile: A B

16/7/2 (Item 1 from file: 8)
DIALOG(R)File 8:Ei Compendex(R)

02182399 E.I. Monthly No: EI8703029819
Title: ANTIREFLECTION COATINGS FOR PLANAR SILICON SOLAR CELLS.
Author: Jellison, G. E. Jr.; Wood, R. F.
Corporate Source: Oak Ridge Natl Lab, Oak Ridge, TN, USA
Source: Solar Cells: Their Science, Technology, Applications and Economics v 18 n 2 Aug 1986 p 93-114
Publication Year: 1986
CODEN: SOCLD4 ISSN: 0379-6787
Language: ENGLISH
Document Type: JA; (Journal Article) Treatment: T; (Theoretical)
Journal Announcement: 8703
Abstract: Calculations are presented for the effect of various antireflection coatings on silicon solar cells. The relationship of different quantum efficiencies and illumination spectra to the optimum film thickness(es) and to the maximum collectible current is examined. It is found that the ratio of the collectible current to the maximum possible current (with the reflectivity = 0 over the entire solar spectrum) is larger if the solar cell has a poor spectral quantum efficiency and/or the illumination spectrum is peaked (such as from an ELH lamp). Single- and double-layer coatings are examined, and it is found that the double-layer coatings are less sensitive to errors in the coating thicknesses, as well as yielding **more collectible current** . (Author abstract) 26 refs.

16/7/3 (Item 1 from file: 34)
DIALOG(R)File 34:SciSearch(R) Cited Ref Sci

07501779 Genuine Article#: 174DM Number of References: 27
Title: Transfer matrix method for the electrochemical impedance of inhomogeneous porous electrodes and membranes
Author(s): Nguyen PH; Paasch G (REPRINT)
Corporate Source: INST FESTKORPER & WERKSTOFFORSCH,/D-01171 DRESDEN//GERMANY/ (REPRINT); INST FESTKORPER & WERKSTOFFORSCH,/D-01171 DRESDEN//GERMANY/; UNIV BAYREUTH,LEHRSTUHL EXPT PHYS 2/D-95440 BAYREUTH//GERMANY/
Journal: JOURNAL OF ELECTROANALYTICAL CHEMISTRY, 1999, V460, N1-2 (JAN 18) , P63-79
ISSN: 0022-0728 Publication date: 19990118

Publisher: ELSEVIER SCIENCE SA, PO BOX 564, 1001 LAUSANNE, SWITZERLAND
Language: English Document Type: ARTICLE
Abstract: The method presented here is based on the two-phase model of a porous system with two continuous subsystems, electrons in the porous material and ions in the pore electrolyte. Both are continuously interconnected via the pore surfaces e.g. by the double layer capacity and/or the charge transfer resistance. The equivalent circuit for this system is the transmission line model. The method applies to systems with parameters which are not constant across the layer. The layer is divided into a number of slabs and in each slab all parameters are replaced by their mean values. The potentials and the currents of two adjacent slabs are connected by a matrix, in the general case a 4 x 4 matrix. The potential propagation in the whole layer is determined by the product matrix. The impedance for both a **layer** coating a metallic **current collector** and a porous membrane embedded in the electrolyte (or the porous layer with electrolyte-filled pores in **between two** metallic **current collectors**) can be expressed by the elements of the product matrix. The matrix is reduced to a 2 x 2-form if one of the resistivities is negligible. In this case for a system of two homogeneous sublayers an analytical formulation is given. The method is applied to a system with an interconnection consisting of double layer capacity, charge transfer resistance and its hindrance by finite diffusion (applicable to polymers). Here the inhomogeneity gradients of the resistivities are considered. It is demonstrated that they can result in significant qualitative modifications of the impedance. This concerns especially the low frequency pseudo-capacitive behaviour which is transformed into a dependence resembling the well known empirical description by constant phase elements often used to interpolate experimental data.

File 98:General Sci Abs/Full-Text 1984-2002/Sep
(c) 2002 The HW Wilson Co.
File 369:New Scientist 1994-2002/Sep W5
(c) 2002 Reed Business Information Ltd.
File 370:Science 1996-1999/Jul W3
(c) 1999 AAAS

Set	Items	Description
S1	1184	ELECTRODE# OR MICROELECTRODE# OR ELECTROLYTE# OR ANOD?? ? OR CATHOD?? ? OR KATHOD?? ? OR POSODE?? ? OR KATOD?? ? OR NEGOD?? ?
S2	64	CURRENT(2N)COLLECT???? ?
S3	0	(PLURALITY OR MANY OR MULTI OR SEVERAL OR TWO OR NUMBER OR NUMEROUS OR MULTIPLE OR MULTITUD? OR PLURIF? OR SECOND OR MORE)(1W)S2
S4	0	MULTILAYER?(1W)S2
S5	1	S2(3N)(SPACE? ? OR SPACING? OR INTERSPAC???? ? OR INTERSTIC? OR SEPARAT???? ? OR SEP? ? OR CLEARANCE? OR INTERVAL? ?)
S6	1	S2(3N)(LAYER? ? OR STRATA? ? OR STRATUM? ? OR INTERLAY? OR INTERLAID?)
S7	4	S2(3N)(INSERT? OR INTERPOS? OR INSINUAT? OR BETWEEN OR SANDWICH? OR EMBED? OR BETWIXT OR INTRODUC? OR INTERVEN? OR INTERLARD? OR INTERJECT?)
S8	7340	ELECTRODE? ? OR MICROELECTRODE? ? OR ELECTROLYTE? ?
S9	1	(S1 OR S8)(S)S5:S7

?t9/3,k

9/3,K/1 (Item 1 from file: 98)
DIALOG(R)File 98:General Sci Abs/Full-Text

04663297 H.W. WILSON RECORD NUMBER: BGSA01163297
Solid acids show potential for fuel cell electrolytes.
Fitzgerald, Richard
Physics Today (Phys Today) v. 54 no7 (July 2001) p. 22-4
SPECIAL FEATURES: il ISSN: 0031-9228
LANGUAGE: English
COUNTRY OF PUBLICATION: United States

...ABSTRACT: 910) have shown that solid acids have the potential to be used for fuel cell **electrolytes** . Fuel cells are being investigated as a clean and efficient way of producing electrical energy...

...was later evaporated to create a new porous catalyst layer with high surface area. Graphite **current - collecting electrodes** surrounded these **layers** . When heated to 160(degree)C and with hydrogen supplied to the **anode** and oxygen to the **cathode** , the assembly developed an open-circuit voltage of 1.11 V. Such cells might prove...
?

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File 344:Chinese Patents Abs Aug 1985-2002/Oct
         (c) 2002 European Patent Office
File 347:JAPIO Oct 1976-2002/Jun(Updated 021004)
         (c) 2002 JPO & JAPIO
File 350:Derwent WPIX 1963-2002/UD,UM &UP=200268
         (c) 2002  Thomson Derwent
File 371:French Patents 1961-2002/BOPI 200209
         (c) 2002 INPI.  All rts. reserv.
File 348:EUROPEAN PATENTS 1978-2002/Oct W03
         (c) 2002 European Patent Office
File 349:PCT FULLTEXT 1979-2002/UB=20021024,UT=20021017
         (c) 2002 WIPO/Univentio

Set     Items   Description
S1        353   AU='FUJIWARA M'
S2        213   AU='FUJIWARA MASAKI':AU='FUJIWARA MASAKI SUMIKA FINE CHEMI-
            CALS CO LTD'
S3        545   AU='NAKAGAWA Y':AU='NAKAGAWA Y Y'
S4        356   AU='NAKAGAWA YUJI':AU='NAKAGAWA YUJI MITSUBISHI HEAVY INDU-
            STRIES LTD'
S5         61   AU='KUROSAKI M'
S6         14   AU='KUROSAKI MASATO'
S7        444   AU='KANEKO S'
S8         11   AU='KANEKO SHINAKO'
S9         23   AU='HARADA G'
S10        17   AU='HARADA GAKU':AU='HARADA GAKU C O NEC CORPORATION'
S11       289   AU='NISHIYAMA T'
S12       178   AU='NISHIYAMA TOSHIHIKO':AU='NISHIYAMA TOSHIHIKO NEC CORPO-
            RATION'
S13        37   S1:S2 AND S3:S12
S14         4   S1:S2 AND S3:S4 AND S5:S6 AND S7:S8 AND S9:S10 AND S11:S12
S15     28201   (ELECTRODE? ? OR MICROELECTRODE? ? OR ELECTROLYTE? ? OR BA-
            TTERY? OR BATTERIES)(10N)(POLYMER? ? OR HOMOPOLYMER? ? OR COP-
            OLYMER? OR TERPOLYMER?)
S16       604   S15(10N)(PLASTICIZER? OR PLASTICISER? OR PLASTOMER? OR ELA-
            STOMER?)
S17         1   S13 AND S16
S18         4   S14 OR S17
?t18/9/1-3

 18/9/1     (Item 1 from file: 350)
DIALOG(R)File 350:Derwent WPIX
(c) 2002  Thomson Derwent. All rts. reserv.

014019843    **Image available**
WPI Acc No: 2001-504057/200156
XRAM Acc No: C01-151575
XRPX Acc No: N01-373905
  Secondary battery useful as battery or electrochemical capacitor,
  includes two collectors made of valve action metal, and two electrodes
Patent Assignee: NEC CORP (NIDE  ); FUJIWARA M (FUJI-I); HARADA G (HARA-I);
  KANEKO S (KANE-I); KUROSAKI M (KURO-I); NAKAGAWA Y (NAKA-I); NISHIYAMA T
  (NISH-I)
Inventor:  FUJIWARA M ;  HARADA G ;  KANEKO S ;  KUROSAKI M ;  NAKAGAWA Y ;
   NISHIYAMA T
Number of Countries: 029  Number of Patents: 004
Patent Family:
Patent No     Kind   Date    Applicat No    Kind   Date     Week
EP 1107343     A2  20010613  EP 2000126188   A   20001130  200156  B
JP 2001160396  A   20010612  JP 99342075     A   19991201  200156
KR 2001062017  A   20010707  KR 200071932    A   20001130  200175
US 20020132168  A1  20020919  US 2000725872   A   20001130  200264

Priority Applications (No Type Date): JP 99342075 A 19991201
Patent Details:
Patent No  Kind Lan Pg   Main IPC    Filing Notes
EP 1107343    A2 E  12 H01M-010/36
   Designated States (Regional): AL AT BE CH CY DE DK ES FI FR GB GR IE IT
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LI LT LU LV MC MK NL PT RO SE SI TR
JP 2001160396 A 6 H01M-004/64
KR 2001062017 A H01M-004/64
US 20020132168 A1 H01M-004/04

Abstract (Basic): EP 1107343 A2

NOVELTY - Secondary battery comprises two collectors made of valve action metal (6), two electrodes (3, 4), separator (5), and outer can (1). A at least 30 to less than 100 % of surface area of each collector is respectively covered with oxide film (2), which is 1.7-10 nm thick.

DETAILED DESCRIPTION - An INDEPENDENT CLAIM is also included for a method of producing a secondary battery comprising subsequently forming first and second oxide films to at least 30 to less than 100% of surface area of respective collector, and subsequently forming first and second electrodes on respective collector. Each oxide film is 1.7-10 nm thick.

USE - Useful as secondary battery, e.g. battery, electrochemical capacitor or electric double-layered capacitor.

ADVANTAGE - The secondary battery exhibits an excellent cyclic property and film forming property.

DESCRIPTION OF DRAWING(S) - The drawing is schematically illustrating the inner structure of the inventive battery.

outer can (1)
oxide film (2)
two electrodes (3, 4)
separator (5)
valve action metal (6)
pp; 12 DwgNo 1/2

Technology Focus:

TECHNOLOGY FOCUS - ELECTRICAL POWER AND ENERGY - Preferred Components: The first electrode is a mixture comprising polyphenyl quinoxaline, carbon powder and sulfuric acid aqueous solution. The second electrode is a mixture comprising polycyanoindole, carbon powder and sulfuric acid aqueous solution. The separator is a micro-porous separator. Preferred Condition: A formation voltage is higher than the working voltage of the secondary battery applied to the collectors to form the respective oxide film. The formation voltage is 3 V.

INORGANIC CHEMISTRY - Preferred Materials: The valve action metal is tantalum or niobium. The oxide film is made of tantalum pent oxide or niobium pent oxide.

Title Terms: SECONDARY; BATTERY; USEFUL; BATTERY; ELECTROCHEMICAL; CAPACITOR; TWO; COLLECT; MADE; VALVE; ACTION; METAL; TWO; ELECTRODE
Derwent Class: A26; A85; L03; X16
International Patent Class (Main): H01M-004/04; H01M-004/64; H01M-010/36
International Patent Class (Additional): H01M-004/60; H01M-004/66
File Segment: CPI; EPI
Manual Codes (CPI/A-N): A05-J02; A12-E06; L03-E01D
Manual Codes (EPI/S-X): X16-B01X; X16-E01A; X16-E02
Polymer Indexing (PS):
<01>
001 018; D01 D11 D10 D19 D18 D32 D76 D50 D92 F32 F30 F94 F70; P1854; P0077
002 018; ND01; ND07; Q9999 Q7341 Q7330; Q9999 Q7363 Q7330; Q9999 Q7409 Q7330; N9999 N7078 N7034 N7023; N9999 N7147 N7034 N7023; K9552 K9483; K9610 K9483; K9687 K9676; K9676-R; K9712 K9676; B9999 B5243-R B4740; K9416

18/9/2 (Item 2 from file: 350)

DIALOG(R)File 350:Derwent WPIX

013982553 **Image available**
WPI Acc No: 2001-466767/200151
XRAM Acc No: C01-140911
XRPX Acc No: N01-346288

Polymer secondary cell electrode production comprises mixing polymer active material powder and conductivity assisting agent powder and

molding by thermal pressing

Patent Assignee: NEC CORP (NIDE)

Inventor: **FUJIWARA M ; HARADA G ; KANEKO S ; KUROSAKI M ; NAKAGAWA Y ; NISHIYAMA T**

Number of Countries: 027 Number of Patents: 003

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week	
EP 1094531	A2	20010425	EP 2000122609	A	20001017	200151	B
JP 2001118570	A	20010427	JP 99296903	A	19991019	200151	
KR 2001040111	A	20010515	KR 200061159	A	20001018	200167	

Priority Applications (No Type Date): JP 99296903 A 19991019

Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
EP 1094531	A2	E	13	H01M-004/04	
Designated States (Regional): AL AT BE CH CY DE DK ES FI FR GB GR IE IT LI LT LU LV MC MK NL PT RO SE SI					
JP 2001118570	A		8	H01M-004/04	
KR 2001040111	A			H01M-004/04	

Abstract (Basic): EP 1094531 A2

NOVELTY - Production of a polymer secondary cell electrode comprises mixing a polymer active material powder (1) exhibiting an electrochemical oxidation-reduction reaction and a conductivity assisting agent powder (2) and molding the mixture by thermal pressing to a predetermined thickness.

DETAILED DESCRIPTION - INDEPENDENT CLAIMS are also included for the following:

(i) the production of a polymer secondary cell electrode comprising coating a conductivity assisting agent with a polymer active material exhibiting an electrochemical oxidation-reduction reaction and molding the coated powder by thermal pressing; and

(ii) the production of a polymer secondary cell electrode comprising attaching by thermal pressing a polymer active material powder exhibiting an electrochemical oxidation-reduction reaction onto a metal foil, a metal mesh, or a metal fiber made of or coated with a conductivity assisting agent, so as to be molded into a predetermined thickness.

USE - Production of a polymer secondary cell electrode.

ADVANTAGE - A cell electrode with a large film thickness is produced without causing cracks or breakage. The large film thickness of the electrode improves the energy density of the polymer secondary cell.

DESCRIPTION OF DRAWING(S) - The figure shows a cross sectional view of a portion of an electrode.

Polymer active material (1)

Conductivity assisting agent (2)

pp; 13 DwgNo 1/6

Technology Focus:

TECHNOLOGY FOCUS - POLYMERS - Preferred Material: The polymer active material is selected from polyaniline, polypyrol, polythiophen, polyacetylene, polyvinyl carbazole, polytriphenylamine, polypyridine, polyopyrimidine, polyquinoxaline, polyphenylquinoxaline, polyisothianaphten, polypyridinezeal, polythienylene, polyparaffinylene, polyfluran, polyacen, polyfuran, polyazulene, polyindol and polydiaminoantraquinon.

INORGANIC CHEMISTRY - Preferred Material: The conductivity assisting agent powder is one or more than one in combination selected from acetylene black, Ketjen black, epitaxial carbon, graphite powder, aniline black, activated carbon powder and other conductive carbon powder, polyacrylonitrile, pitch, cellulose, phenol resin or sintered carbon powder formed from palm shells, oxide powder of titanium, tin or indium, metal powder such as stainless steel, nickel, gold, silver, tantalum, niobium, copper and aluminum.

Title Terms: POLYMER; SECONDARY; CELL; ELECTRODE; PRODUCE; COMPRISE; MIX; POLYMER; ACTIVE; MATERIAL; POWDER; CONDUCTING; ASSIST; AGENT; POWDER; THERMAL; PRESS

Derwent Class: A26; A85; L03; X16

International Patent Class (Main): H01M-004/04
International Patent Class (Additional): G02F-001/17; H01M-004/60; H01M-004/62
File Segment: CPI; EPI
Manual Codes (CPI/A-N): A09-A03; A11-B11; A12-E06A; L03-E01B9
Manual Codes (EPI/S-X): X16-E03A; X16-E08
Polymer Indexing (PS):
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001 018; R00232 G1650 G1649 D01 D19 D18 D31 D50 D76 D86 F08 F07; S9999 S1434; S9999 S1456-R; S9999 S1514 S1456; S9999 S1605-R; L9999 L2540 L2506; L9999 L2664 L2506; P1127 P1105 H0293 D01 D19 D18 F07; H0000; L9999 L2573 L2506; L9999 L2039
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003 018; R00898 G2006 D01 D23 D22 D31 D43 D51 D54 D56 D59 D75 D84 F00; S9999 S1434; S9999 S1456-R; S9999 S1514 S1456; S9999 S1605-R; L9999 L2540 L2506; L9999 L2664 L2506; H0000; P1503 H0293 P0044 D01 D23 D22 D43 D51 D56 D59 F00; L9999 L2573 L2506; L9999 L2299
004 018; R00327 G0000 D01 D02 D12 D10 D51 D52 D82; S9999 S1434; S9999 S1456-R; S9999 S1514 S1456; S9999 S1605-R; L9999 L2540 L2506; L9999 L2664 L2506; H0000; L9999 L2573 L2506
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016 018; ND01; ND07; N9999 N7147 N7034 N7023; N9999 N7158 N7034 N7023; N9999 N6439; N9999 N6780-R N6655; N9999 N6155; B9999 B5243-R B4740; K9552 K9483; K9574 K9483; K9518 K9483; Q9999 Q7341 Q7330; Q9999 Q7409 Q7330; K9701 K9676; B9999 B3269 B3190; K9949; B9999 B3849-R B3838 B3747; N9999 N6440-R; K9416; N9999 N6462 N6440; N9999 N6177-R
017 018; K9610 K9483; ND03

018 018; A999 A475
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001 018; R00817 G0475 G0260 G0022 D01 D12 D10 D26 D51 D53 D58 D83 F12; S9999 S1434; S9999 S1514 S1456; M9999 M2108 M2095; H0000; P0088 ; P0102
002 018; R24071 G3601 P0599 D01; S9999 S1434; S9999 S1514 S1456; M9999 M2108 M2095
003 018; R01852-R G3634 D01 D03 D11 D10 D23 D22 D31 D42 D50 D76 D86 F24 F29 F26 F34 H0293 P0599 G3623; S9999 S1434; S9999 S1514 S1456; M9999 M2108 M2095
004 018; P0226 P0282-R D01 D18 F30; S9999 S1434; S9999 S1514 S1456; M9999 M2108 M2095
005 018; ND01; ND07; N9999 N7147 N7034 N7023; N9999 N7158 N7034 N7023; N9999 N6439; N9999 N6780-R N6655; N9999 N6155; B9999 B5243-R B4740; K9552 K9483; K9574 K9483; K9518 K9483; Q9999 Q7341 Q7330; Q9999 Q7409 Q7330; K9701 K9676; B9999 B3269 B3190; K9949; B9999 B3849-R B3838 B3747; N9999 N6440-R; K9416; N9999 N6462 N6440; N9999 N6177-R
006 018; N9999 N7090 N7034 N7023; B9999 B5447 B5414 B5403 B5276

18/9/3 (Item 3 from file: 350)

013892847 **Image available**
WPI Acc No: 2001-377060/200140
XRAM Acc No: C01-115424
XRPX Acc No: N01-276002

Molded electrode **for use in secondary** battery **comprises** electrode **material with** polymer **active material, conductivity-enhancer and** plasticizer **, molded in one piece with current collector sheet**

Patent Assignee: NEC CORP (NIDE)
Inventor: **FUJIWARA M ; HARADA G ; KANEKO S ; KUROSAKI M ; NAKAGAWA Y ; NISHIYAMA T**
Number of Countries: 002 Number of Patents: 002
Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week	
GB 2355579	A	20010425	GB 200025172	A	20001013	200140	B
JP 2001118565	A	20010427	JP 99292537	A	19991014	200141	

Priority Applications (No Type Date): JP 99292537 A 19991014
Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
GB 2355579	A		64	H01M-010/40	
JP 2001118565	A		15	H01M-004/02	

Abstract (Basic): GB 2355579 A

NOVELTY - Molded electrode comprises an electrode material (2) and at least one current collector sheet (3). The **electrode** material includes a **polymer** active material, a conductivity-enhancing agent and a **plasticizer** , and is molded or formed into one piece with the collector sheet.

DETAILED DESCRIPTION - INDEPENDENT CLAIMS are included for:

(1) A process of forming a molded electrode by hot-pressing; and

(2) A secondary battery which uses the molded electrode as the positive and/or negative electrode.

USE - As an electrode using a polymer active material in a secondary battery.

ADVANTAGE - The use of hot-pressing avoids solvent application, during which the solvent evaporates and often generates cracks in the film. The method also enables a thick film to be formed. The energy density of the battery is enhanced relative to previous devices, since the ratio of active material to current collector volume is increased. The plasticizer is chosen to minimize electrical resistance and so maximize power density. Since the electrode is not limited to a sheet-type, there is greater scope in battery design.

DESCRIPTION OF DRAWING(S) - The drawing shows a sectional view of a molded electrode.

Electrode material (2)
Current collector sheet (3)
Terminal (4)
pp; 64 DwgNo 1/6
Technology Focus:
TECHNOLOGY FOCUS - ELECTRICAL POWER AND ENERGY - Preferred
Electrode: The electrode material is formed on at least one side of the current collector sheet(s) to a thickness of between 300 microns and 9 mm. A number of (at least two) current collector sheets are spaced from each other in the direction of the electrode thickness. The ratio of the volume of the electrode material and the volume of the current collector sheet (excluding the volume of the terminal portion (4) of the current collector sheet) is between 30:1 and 100:1. The amount of plasticizer is 2-15% by weight of the total of the electrode material.
Preferred Process: The hot-pressing step forms a molded material. Electrode manufacture involves hot-pressing the molded material, the same electrode material and a different current collector sheet and/or laminating and hot-pressing a number of molded materials together, to form a one-piece molded electrode. An uneven die is used in the hot-pressing to form an uneven surface on the electrode material.
Title Terms: ELECTRODE; SECONDARY; BATTERY; COMPRISE; ELECTRODE; MATERIAL; POLYMER; ACTIVE; MATERIAL; CONDUCTING; ENHANCE; ONE; PIECE; CURRENT; COLLECT; SHEET
Derwent Class: A32; A85; L03; X16
International Patent Class (Main): H01M-004/02; H01M-010/40
International Patent Class (Additional): H01M-004/04
File Segment: CPI; EPI
Manual Codes (CPI/A-N): A08-M09A; A08-P01; A09-A03; A11-B01; A12-E06A; L03-E01B
Manual Codes (EPI/S-X): X16-E08A
Polymer Indexing (PS):
<01>
001 018; P0000; S9999 S1434
002 018; ND01; ND07; N9999 N6440-R; Q9999 Q7341 Q7330; Q9999 Q7409 Q7330; B9999 B5243-R B4740; B9999 B5378 B5276; N9999 N6462 N6440
003 018; A999 A135; B9999 B3269 B3190
004 018; A999 A384
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18/5/4 (Item 1 from file: 348)
DIALOG(R)File 348:EUROPEAN PATENTS

01288709
Electrode, secondary battery and method of producing the same
Elektrode, Sekundarbatterie und Verfahren zur Herstellung
Electrode, batterie secondaire et leurs procedes de fabrication
PATENT ASSIGNEE:
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PATENT (CC, No, Kind, Date): EP 1107343 A2 010613 (Basic)
APPLICATION (CC, No, Date): EP 2000126188 001130;

PRIORITY (CC, No, Date): JP 99342075 991201
DESIGNATED STATES: AT; BE; CH; CY; DE; DK; ES; FI; FR; GB; GR; IE; IT; LI; LU; MC; NL; PT; SE; TR
EXTENDED DESIGNATED STATES: AL; LT; LV; MK; RO; SI
INTERNATIONAL PATENT CLASS: H01M-010/36; H01M-004/66; H01M-004/60

ABSTRACT EP 1107343 A2

A secondary battery comprises a pair of collectors made of a valve action metal, a pair of electrodes comprising a sulfuric acid aqueous solution, a separator and an outer can. Each collector is covered with an oxide film of a thickness of 1.7-10 nm. The oxide film is formed in a range of from 30% by area or more to less than 100% by area relative to the surface area of the collector. Each collector has one electrode disposed thereon.

ABSTRACT WORD COUNT: 81
NOTE:
Figure number on first page: 1
LEGAL STATUS (Type, Pub Date, Kind, Text):
Application: 010613 A2 Published application without search report
Assignee: 020911 A2 Transfer of rights to new applicant: Nec Tokin Corporation (4092260) 7-1, Koriyama 6-chome, Taihaku-ku Sendai-shi, Miyagi JP
LANGUAGE (Publication,Procedural,Application): English; English; English
FULLTEXT AVAILABILITY:

Available Text	Language	Update	Word Count
CLAIMS A	(English)	200124	926
SPEC A	(English)	200124	4535
Total word count - document A			5461
Total word count - document B			0
Total word count - documents A + B			5461

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